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The Anthropology of the Brain

The Evolution of the Neanderthal Brain

By DONALD A. SWAN

I

In 1856 a fossil human skullcap and some postcranial bones were found by workmen quarrying in the valley of the Neander River near Düsseldorf, Germany. The remains were taken to Dr Johann Fuhlrott, the local teacher of natural sciences, and later to Professor Hermann Schaafhausen, the Bonn naturalist.[1] The bones were those of a 40-to-50-year-old male, with a sloping brow and heavy brow ridges.[2] The cranial capacity, however, was within the modern European range. Boule later estimated the capacity of this fossil skull to be 1408 c.c.,[3] while Coon (1962) lists it at 1450 c.c.[4] In 1864 the British anatomist, Dr William King, designated the fossil find as *Homo neanderthalensis* or Neanderthal Man.[5]

In 1833 Dr Schmerling had discovered a similar human cranium in the caves of Engis in the valley of the Meuse in Belgium. The skull was found in an osseous breccia associated with the bones of now extinct mammals, such as the mammoth (*Elephas primigenius*) and the woolly rhinoceros (*Rhinoceros tichorhinus*).[6] Fuhlrott and Schaafhausen and later Sir Charles Lyell and Thomas Huxley (1863) concluded that "the Neanderthal skull is of great, though uncertain, antiquity."[7] In the absence of accurate methods of dating in the mid-nineteenth century, this view was disputed by many of the leading scientists of the time — including the noted pathologist, Dr Rudolf Virchow.[8]

During the next fifty years, additional Neanderthal fossils

[1] T. D. McCown and K. A. R. Kennedy (editors), *Climbing Man's Family Tree, Prentice-Hall,* Englewood Cliffs, 1972, p. 93.

[2] Carleton S. Coon, *The Origin of Races,* Alfred A. Knopf, pp. 519-520 and 524.

[3] Karl Saller, *Lehrbuch der Anthropologie,* Gustav Fischer, Stuttgart, Germany, 1959, Vol. II, p. 1215

[4] Carleton S. Coon, *op. cit.,* p. 672.

[5] T. K. Penniman, *A Hundred Years of Anthropology,* Gerald Duckworth, London, England, p. 108.

[6] T. K. Penniman, *op. cit.,* p. 67

[7] T. H. Huxley, "On Some Fossil Remains of Man," 1863, in T. D. McCown and K. A. R. Kennedy (editors), *op. cit.,* p. 101.

[8] T. D. McCown and K. A. R. Kennedy (editors), *op. cit.,* pp. 93-94.

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were found in several countries of Western Europe. These included finds at La Naulette, Belgium, in 1866 and in Spy, Belgium, in 1886, in the Sipka cave, Moravia, in 1880, and at Dordogne and Corrèze, France, in 1908.[9] A similar skull had also been excavated at Forbes' Quarry in Gibraltar as early as 1849. Forgotten at the time, its importance was not recognized until 1864, "When it was labelled a member of the Neanderthal group."[10]

In 1908 an adolescent male skeleton was found at a rock-shelter in Le Moustier, France. Flake tools were found associated with the remains.[11] The Mousterian culture of the Neanderthals, which was named after the rock-shelter of Le Moustier, was subsequently found to extend with many variations from "the Atlantic seaboard to the area north of the Black Sea and Inner Asia."[12] The European Neanderthals generally lived in a time period of extreme cold — the fourth or Würm glaciation of Europe. Extensive use was made of fire, while only "limited use was made of bone and related materials."[13] Neanderthal man was chiefly a hunter of the larger animals of his time — mammoth, woolly rhinoceros, cave lion, bison, *et al.*[14] Wooden spears, stone balls, and primitive pit-traps were employed in these hunts.[15] Many — but not all — of the Neanderthal cranial and skeletal remains were found in caves and rock-shelters.

The Neanderthal find at La Chapelle aux Saints in Corrèze, France, was that of a middle-aged male and included a nearly complete skeleton. The specimen was described in the anthropological literature by the noted French palaeontologist, Marcellin Boule (1912-1913).[16] Boule's reconstruction of the skull and skeleton of the La Chapelle aux Saints fossil find greatly influenced both popular and scientific conceptions of the physical appearance and cultural status of Neanderthal man. According to Coon (1962), Neanderthal man "is pictured as a crouching, stooping, squat and brutal creature, with huge jaws and little or no forehead, and a low grade of intelligence. Flesh reconstructions of his face make him look like an ape. . . . This, the popular image of Neanderthal

[9] Ales Hrdlicka, "The Neanderthal Phase of Man," 1927, in T. D. McCown and K. A. R. Kennedy (editors), *op. cit.*, pp. 272-274.

[10] Carleton S. Coon, *op. cit.*, p. 519.

[11] Ales Hrdlicka, *op. cit.*, pp. 267-270.

[12] Grahame Clark, 1969, *World Prehistory: A New Outline*, Cambridge University Press, New York, pp. 42-43.

[13] Grahame Clark, *op. cit.*, p. 44.

[14] Ales Hrdlicka, *op. cit.*, pp. 260 and 266.

[15] Grahame Clark, *op. cit.*, p. 44.

[16] Marcellin Boule, *L'Homme Fossile de la Chapelle aux Saints*, Masson et Cie, Paris, 1912-1913.

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man . . . is wrong, and so are most of the elements in the total Neanderthal concept."[17]

II

The taxonomic status and the relation of Neanderthal man to modern man has long been a subject of debate among anthropologists and palaeontologists.[18] Many early students of fossil men were impressed by the "primitive" morphological traits of the "classic" Neanderthals of western Europe and the relative material poverty of the Mousterian cultures and classified Neanderthal man as a separate and distinct species. The Neanderthals appeared to contrast sharply with the anatomically modern Aurignacians of Upper Palaeolithic Europe, who possessed a highly developed cave art, and "suddenly" replaced the Neanderthals some 30,000 to 35,000 years ago.[19] Most of these investigators concluded that Neanderthal man — or at least the "classic" Neanderthals of western Europe — formed a side evolutionary line that became extinct and was not ancestral to the living peoples of Europe.

The French palaeontologist, Marcellin Boule (1923), for example, wrote: "*Homo neanderthalensis* is an archaic species of man. It was abruptly followed by the Aurignacians, 'who differed from the Mousterians as much in their superior culture as in the superiority or diversity of their physical characters.' "[20]

Similar views were expressed by M. C. Burkitt (1921)[21] and G. G. MacCurdy (1924)[22] in the past, and more recently by Weckler (1957)[23] and Le Gros Clark (1966, 1971).[24]

[17] Carleton S. Coon, *op. cit.*, pp. 519-520.

[18] Ales Hrdlicka, *op. cit.*, pp. 257-259.

[19] Ales Hrdlicka, *op. cit.*, p. 258.

[20] Marcellin Boule, *Fossil Men*, University of Edinburgh Press, Edinburgh, Scotland, 1923, pp. 242-243.

[21] M. C. Burkitt, *Prehistory*, Cambridge University Press, Cambridge, England, 1921, p. 90. "The race who made this culture (Mousterian) was of a low type known as the Neanderthal race. This appears to have been a throwback in the line of evolution of mankind and this retrograde sport seems to have had no successor."

[22] George G. MacCurdy, *Human Origins*, D. Appleton, New York, 1924, Vol. 1, pp. 209-210. "During ages long subsequent to the time when the races of Piltdown and Heidelberg lived, there spread over the greater part of Europe, the primitive Neanderthal race, of coarse mental and physical fiber. . . . This race contributed nothing, in fact, save utilitarian artifacts, the so-called Mousterian industry. . . . The Aurignacians were a 'new race,' which supplanted completely the archaic Neanderthal race of Mousterian times."

[23] J. E. Weckler, "Neanderthal Man," *Scientific American*, 1957, Reprint No. 844.

[24] W. E. Le Gros Clark, *History of the Primates*, Phoenix, Chicago, 1966: W. E. Le Gros Clark, *The Antecedents of Man*, University of Edinburgh Press, Edinburgh, Scotland, 1971.

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According to Le Gros Clark (1971), the Early Mousterian population of Europe (*i.e.*, represented by the fossil finds from Ehringsdorf, Saccopastore, Ganovce, Krapina, *et al.*), dating from the last interglacial into the onset of the Würm glaciation, gave rise to two separate evolutionary lines — " the specialized Neanderthals which became extinct and the modern forms of *Homo sapiens*."[25] This proposed sequence of fossil hominid types is presented in Figure 1.

The outstanding physical traits of the specialized or " classic " Neanderthal type (*i.e.*, represented by the fossil finds from La Chapelle, La Ferrassie, Neanderthal, Le Moustier, La Quina, *et al.*) are " the massive brow ridges, retreating forehead, large projecting jaws, absence of a chin eminence, and certain peculiarities of the occipital region and base of the skull." Some of the limb bones are regarded as being " unusual in the thickness and curvature of their shafts and the relative size of their articular extremities." The size of the Neanderthal brain — as indicated by the cranial capacity — is, however, " surprisingly large, on the average even larger than that of modern *Homo sapiens*."[26]

Le Gros Clark interprets the fossil and archaeological record as indicating that " at the end of the Mousterian period Neanderthal man disappeared from Europe quite abruptly to be replaced by a population of the modern *Homo sapiens* type."[27] This new population — the Aurignacian — is viewed as " having developed their distinctive culture elsewhere, probably in Asia, migrated into Europe and, with their superior social organization, quickly displaced Mousterian man and occupied his territory."[28]

Weckler (1959) advanced the hypothesis that " Neanderthal man and *Homo sapiens* arose and developed separately in the two worlds — Neanderthal in central and eastern Asia, *sapiens* in the world of Europe, Africa, Asia Minor and India."[29] According to this theory, the series *Pithecanthropus - Sinanthropus - Homo soloensis* - Classic Neanderthal form one evolutionary line, while Heidelberg - Swanscombe - Fontéchevade - Cro - Magnon form a second and separate evolutionary line. " For hundreds of thousands of years, through the first three Ice Ages, they evolved along separate lines until Neanderthal finally made his way to Europe some time later in the third interglacial period, less than 150,000 years ago."[30]

In Weckler's view, the two species lived at the same time,

[25] W. E. Le Gros Clark, *The Antecedents of Man, op. cit.*, p. 357.
[26] W. E. Le Gros Clark, *The Antecedents of Man, op. cit.*, p. 356.
[27] W. E. Le Gros Clark, *The Antecedents of Man, op. cit.*, p. 357.
[28] W. E. Le Gros Clark, *History of the Primates, op. cit.*, pp. 116-117.
[29] J. E. Weckler, *op. cit.*, p. 4.
[30] J. E. Weckler, *op. cit.*, p. 8.

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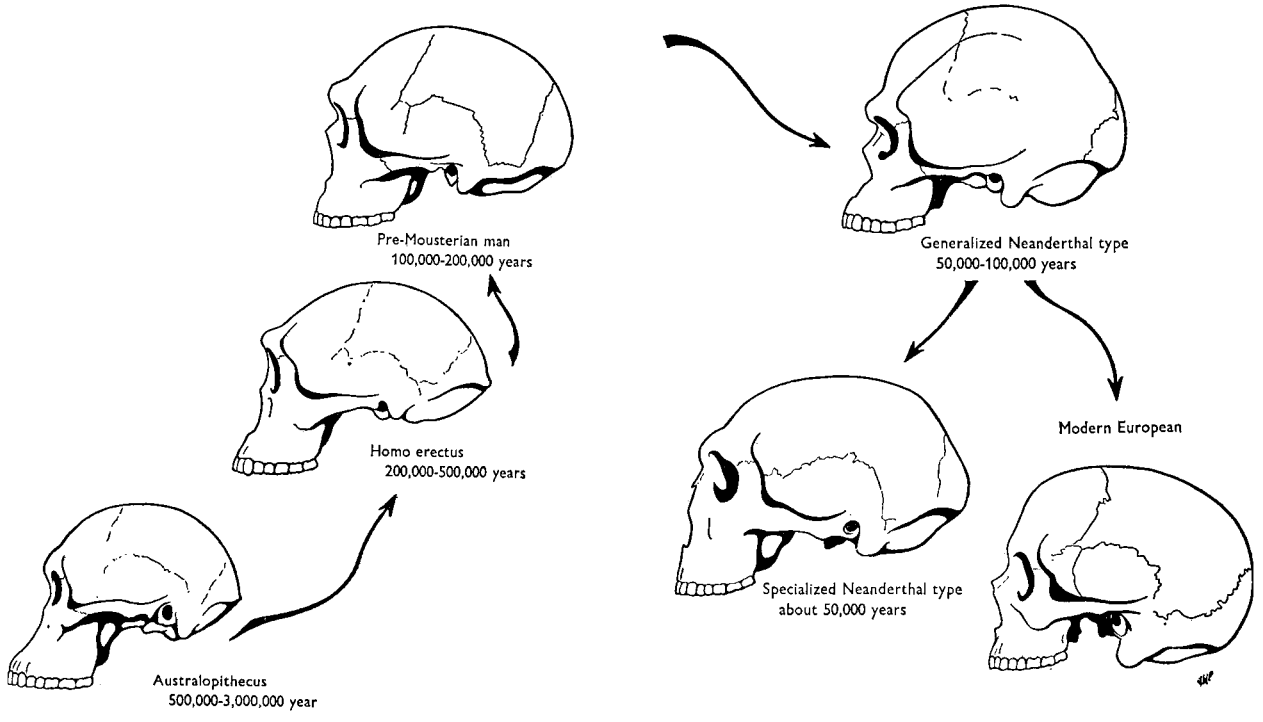
FIGURE 1



Le Gros Clark's construction of hominid phylogeny (Le Gros Clark, 1971)

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with the " progressive " Neanderthal type — characterized by a high-vaulted skull and some other *sapiens* features — resulting from hybridization between Neanderthal and *sapiens* during the third interglacial. The " classic " Neanderthals of the fourth or Würm glacial period were regarded as possessing " very distinctive features: a long, low-vaulted skull, a big, jutting brow-ridge running across the forehead, a broad, low-bridged nose, a jutting, muzzle-like mouth, a retreating chin."[31] Weckler's comparison of the reconstructed crania of the *sapiens* Cro-Magnon man and the " classic " Neanderthal man is presented in Figure 2.

Contrary views regarding the relation of the Neanderthals to modern *Homo sapiens* were expressed by several prominent anthropologists of the time, including Ales Hrdlicka (1927),[32] Franz Weidenreich (1947),[33] and Hans Weinert (1943: 1955).[34] Dr Hrdlicka extensively reviewed the known archaeological, geological and skeletal material relating to the origins and taxonomic status of Neanderthal man in a paper entitled " The Neanderthal Phase of Man," which was delivered as " The Huxley Memorial Lecture for 1927." He concluded that the Neanderthals represented a phase in the evolution of man rather than a separate species which " perished abruptly and completely, without leaving any progeny " and that the known evidence favored the assumption of " the evolution of the Neanderthaler into later man."[35]

Dr Hrdlicka observed that the Mousterian or Neanderthal phase of man began towards the end of the warm inter-glacial period and reached to the culmination of the main ice invasion. During this period great changes of environment occurred, which called for " new adaptations and developments in hunting." Neanderthal man was " gradually confronted with hard winters, which demand more shelter, more clothing, more fire, and storage of provisions." These major changes in the principal environmental factors were regarded by Hrdlicka as having brought about " greater mental as well as physical exertion " and " an intensification of natural selection, with the survival of only the more, and perishing of the less, fit."[36]

[31] J. E. Weckler, *op. cit.*, p. 4.

[32] Ales Hrdlicka, *op. cit.*, pp. 281-285.

[33] Franz Weidenreich, " Facts and Speculations Concerning the Origins of *Homo sapiens*," 1947, T. D. McCown and K. A. R. Kennedy, *op. cit.*, pp. 346-352.

[34] Hans Weinert, *Stammesgeschichte der Manschheit*, Franck'sche Verlagshandlung, Stuttgart, Germany, 1943; Hans Weinert, *Die Neanderthaler Gruppe und die Praesapiensfunde*, Berlin, Germany, 1955.

[35] Ales Hrdlicka, *op. cit.*, pp. 281 and 285.

[36] Ales Hrdlicka, *op. cit.*, pp. 282-283.

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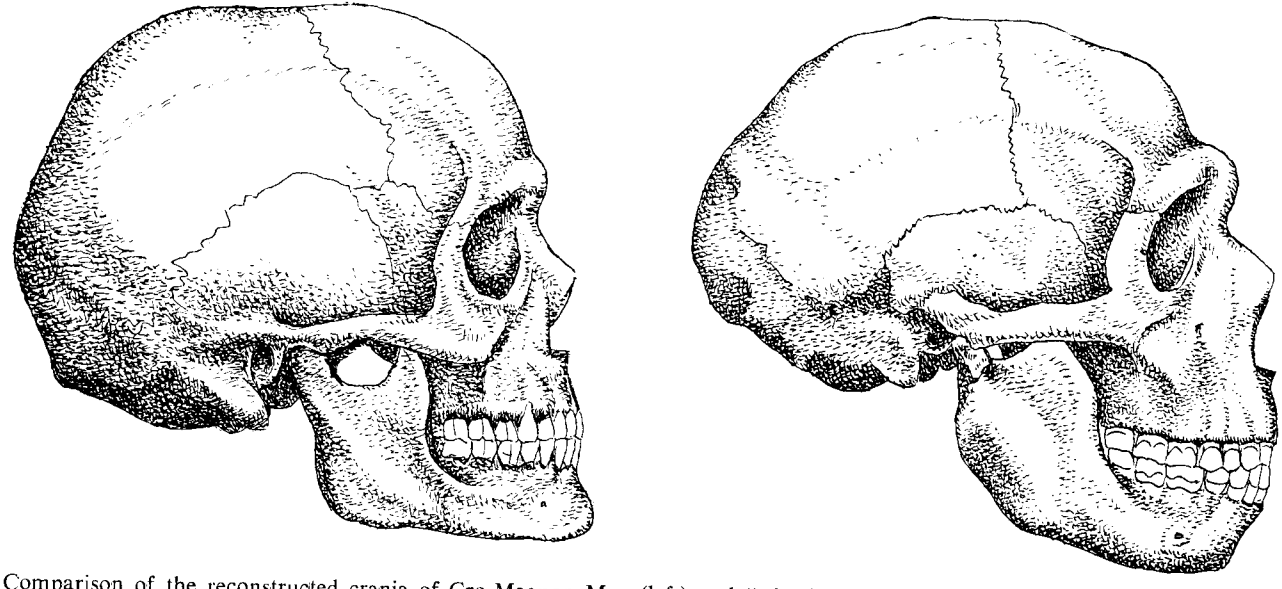
FIGURE 2



Comparison of the reconstructed crania of Cro-Magnon Man (left) and "classic" Neanderthal Man (right). (Weckler, 1959)

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The Neanderthal skeletal remains considered as a population were found to exhibit great variability. The physical differences between Neanderthal man and *Homo sapiens* were found by Dr Hrdlicka to be essentially of two categories: "reduction in musculature — that of the jaws as well as that of the body" and "changes in the supraorbital torus." However, both these categories of change have been observed as long-run evolutionary trends which have continued from Magdalenian times to the present day. Consequently, Hrdlicka concluded that these trends characterized "the progressive evolution of Neanderthal man" and that "such evolution would inevitably carry his most advanced forms to those of primitive *Homo sapiens*."[37]

Weidenreich (1947) in a later review of the "paleontological facts" concerning the origin of *Homo sapiens* contended that the Neanderthals represented an evolutionary phase of man and that modern man derived "from forms like the Neanderthal man."[38] The famous German anthropologist, Dr Hans Weinert (1943), also concluded that one or two of the living great racial lines (*grosse Rassenlinien*) could be traced back to *Homo neanderthalensis* of the middle Stone Age.[39]

III

Since the early finds of Neanderthal cranial and skeletal remains at a number of sites in Western Europe, additional discoveries and improved research techniques have both added to and modified our knowledge of Neanderthal man. These include the discoveries of Neanderthal fossils in East Europe, southern Russia, Soviet Central Asia, and Southwest Asia, and "Neanderthaloid" fossils in Africa and Southeast Asia.[40] The other advances comprise more refined dating of Neanderthal cultural and skeletal remains[41] and statistical analyses of the Mousterian culture complexes.[42]

In 1921 a virtually complete cranium was discovered in the course of mining operations at the Broken Hill Mine in Northern

[37] Ales Hrdlicka, *op. cit.*, p. 284.

[38] Franz Weidenreich, *op. cit.*, p. 346 and pp. 350-352.

[39] Hans Weinert, 1943, *Stammesgeschichte der Menschheit, op. cit.*, p. 70.

[40] Carleton S. Coon, *op. cit.*, pp. 519-577.

[41] David S. Brose and Milford H. Wolpoff, "Early Upper Paleolithic Man and Late Paleolithic Tools," *American Anthropologist*, Vol. 73 No. 5, 1971. pp. 1156-1194.

[42] Sally R. Binford and Lewis R. Binford, "Stone Tools and Human Behavior," *Scientific American*, Reprint No. 643, 1969.

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Rhodesia. The Broken Hill skull was low-vaulted and possessed "the broadest, most massive brow ridges of any human skull yet found."[43] From 1931 to 1933 several hominid skulls were unearthed in the Solo River Valley of Central Java. The Solo skulls were "as thick as their Middle Pleistocene predecessors," low-vaulted, and had "large brow ridges."[44] The discovery in widely separated areas of Africa and Southeast Asia of hominid fossils with resemblances to the "classic" Neanderthals in a few morphological features led some anthropologists to write of "tropical Neanderthals."[45] Weckler even derived the European "classic" Neanderthals as lineal descendants of the Javan Solo population.[46]

Carleton Coon has recently criticized this tendency to label as *Neanderthal* "fossil-man remains in Asia, Africa, and even America." The last category includes "some low-vaulted American Indian crania."[47] The Javanese Solo crania are estimated to be "between 150,000 and 75,000 years old."[48] The mean cranial capacity of the group is some 1150 c.c., with a range of 1035 c.c. to 1255 c.c. Dr Coon finds many points of similarity between the earlier Djetis and Trinil pithecanthropine crania and the later Solo crania. He thus concludes that Solo man "although larger-brained than his predecessors, was still *Homo erectus,*" that "he occupied the same evolutionary grade as *Sinanthropus,*" and that "he had nothing to do with Neanderthal."[49] The Rhodesian Broken Hill skull is "believed to be no more than 25,000 years old" and has an estimated cranial capacity of 1280 c.c. Coon finds that "its brow ridges, palate, and teeth match in size those of the much earlier *Pithecanthropus* skulls, but its features are those of Negroes."[50] He classifies the Rhodesian skull as a specimen of *Homo erectus.*

Professor Ernst Mayr (1963) in his discussion of "The Taxonomic Evaluation of Fossil Hominids" also points out that Rhodesian man and Solo man "differ in many details of skull shape and cranial capacity from Neanderthal as well as from *s. sapiens,*" although "sharing the large supraorbital torus with Neanderthal." Hence, he considers it "quite improbable" that

[43] Carleton S. Coon, *op. cit.*, pp. 621-627.

[44] Carleton S. Coon, *op. cit.*, pp. 390-399.

[45] Ronald Singer, "Der Solo-Mensch von Java: ein Tropischer Neanderthaler," in G. H. R. Koenigswald (editor), *Hundert Jahre Neanderthaler,* Kemink en Zoon, Utrecht, Holland, 1958, pp. 21-26.

[46] J. E. Weckler, *op. cit.*, p. 5.

[47] Carleton S. Coon, *op. cit.*, pp. 519-520.

[48] Carleton S. Coon, "New Findings on the Origin of Races," in T. D. McCown and K. A. R. Kennedy, *op. cit.*, p. 368.

[49] Carleton S. Coon, *The Origin of Races, op. cit.*, pp. 398-399.

[50] Carleton S. Coon, "New Findings on the Origin of Races," *op. cit.*, p. 371.

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these peripheral African and Asiatic types "are directly related to Neanderthal." Dr Mayr believes that Rhodesian man and Solo man "may have to be classified with *Homo erectus*, in view of their small cranial capacity." On the other hand, he concludes that the differences between the European or classical Neanderthal and *sapiens* "are mostly of a rather superficial nature, such as the size of the supraorbital torus and the general shape of skull." The cranial capacity is "remarkably similar in the two forms."[51]

Gerhard Heberer (1959) similarly maintains that "one cannot call everything which is neither clearly *Pithecanthropus* or *sapiens*-type Neanderthalians." He lists in this category "the discoveries of Broken Hill, Rhodesia, and the recently found Saldanha skull, and the series of finds in Ngandong, East Java, which should not be called respectively African or Asiatic Neanderthalians." In the opinion of Dr Heberer, "the concept 'Neanderthalian' should be left for periglacial forms from Europe in the first half of the Würm ice age."[52]

Carleton Coon[53] in his study of fossil man and racial origins contends that the "genuine Neanderthals" are "represented by the skeletal remains of people who lived in Europe and parts of western and central Asia during Würm I, and in some places a little later, . . . and who bore certain anatomical features in common, notably heavy, undivided brow ridges, small mastoids, pointed prognathous face, and large, projecting noses."[54] Consequently, he defines the concept of Neanderthal man as follows:[55]

> If the concept of a Neanderthal people is to have any validity, it must be limited in terms of time, space, and culture. Only in this way can the Neanderthals have formed a population with a gene pool of its own. Their time span is Early Würm or Würm I, from about 75,000 years ago to the beginning of the Göttweig Interstadial, about 40,000 years ago. Its *lebensraum* was Europe, western Asia, and central Asia as far east as the Altai Mountains and south to the Hindu Kush. Its culture was Mousterian, itself a complex of earlier tool-making techniques.

Employing this definition of Neanderthal man, Professor Coon finds that as of 1962 some 82 true Neanderthals, found in 42 sites,

[51] Ernst Mayr, "The Taxonomic Evaluation of Fossil Hominids," 1963, in T. D. McCown and K. A. R. Kennedy, *op. cit.*, pp. 372-386.

[52] Gerhard Heberer, "The Descent of Man and the Present Fossil Record," *Cold Spring Harbor Symposia on Quantitative Biology*, Vol. 24, 1959, p. 242.

[53] Carleton S. Coon. *The Origin of Races, op. cit.*, p. 520.

[54] Carleton S. Coon, *The Origin of Races, op. cit.*, p. 523.

[55] Carleton S. Coon, *The Origin of Races, op. cit.*, p. 520.

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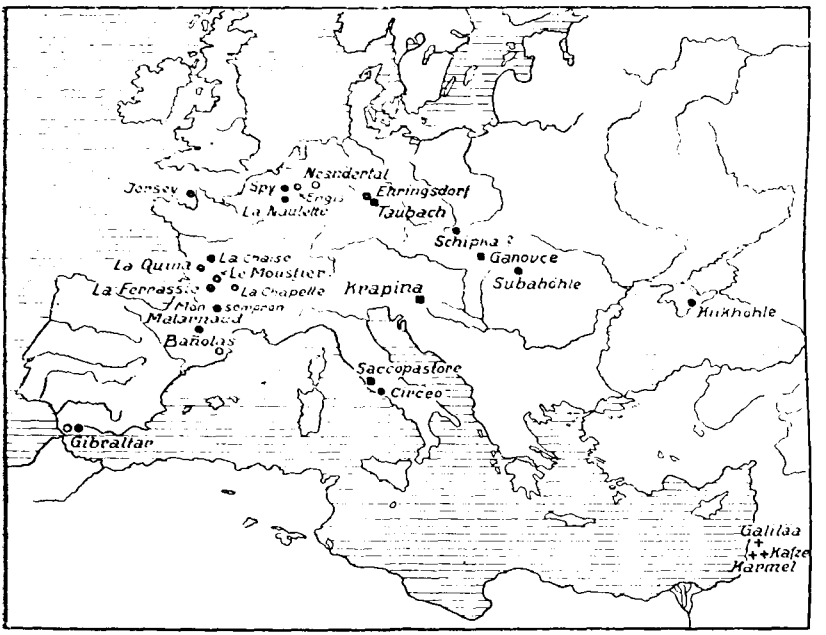
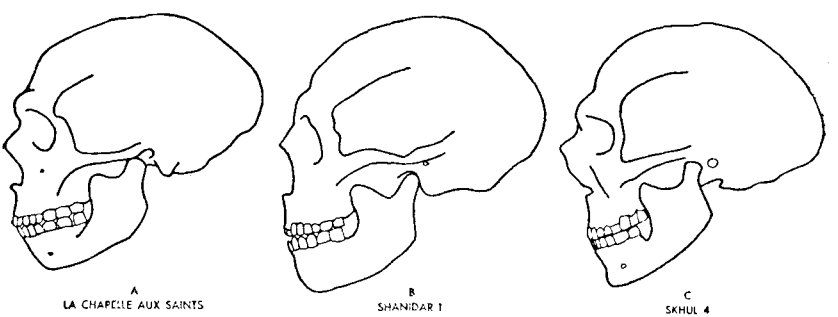
FIGURE 3



Geographical distribution of Neanderthal fossils (Gieseler, 1959)

FIGURE 4



Comparisons of three Neanderthal crania — La Chapelle aux Saints (A), Shanidar 1 (B), and Skhul 4 (C). (Coon, 1962)

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have been described in the anthropological literature.[56] These fossil finds are listed in Table I. The geographical distribution of the most important Neanderthal sites is presented in Figure 3.[57] Although remains of some 55 Neanderthal individuals are included in Carleton Coon's sample many of them consist of only a few fragments. Hence, reconstructions of complete crania and estimates of cranial capacity can vary from one investigator to the next. Sufficient cranial and skeletal material is available, however, to statistically analyze some of the hypotheses regarding the origin and affinities of Neanderthal man and his culture.

IV

Statistical analysis of Neanderthal morphological traits has demonstrated a high degree of variability within the Neanderthal group. Brose and Wolpoff (1971) calculated the coefficient of variation (CV) for ten cranial measurements taken from samples of "classic" Neanderthals, Upper Palaeolithic Europeans, Predynastic and Late Dynastic Egyptians, Harappa Indians, and extant populations from Europe, Asia, Africa, Australia and North America. The anthropometric measurements comprised: cranial capacity, cranial length, cranial breadth, cranial height, nasion-basion, upper facial height, nasal height, nasal breadth, bizygomatic breadth, and foramen magnum area. The "classic" Neanderthals were more variable in most features than any of the contemporary populations. The European Upper Palaeolithic population was the closest to the "classic" Neanderthals in terms of the coefficient of variation.[58]

This morphological variability within the Neanderthal group can be seen from Carleton Coon's comparison of three different Neanderthal crania — La Chapelle aux Saints, Shanidar 1, and Skhul 4 (see Figure 4). Dr Coon observes that although the three were possibly contemporary, "their skulls form an evolutionary sequence from the low-headed prognathous La Chapelle aux Saints to the high-headed, orthognathous Skhul 4." The three Neanderthal crania come from widely separated geographical areas, with La Chapelle aux Saints showing "the most extreme form of cold adaptation and Skhul 4 the least."[59]

[56] Carleton S. Coon, *The Origin of Races, op. cit.*, pp. 523-526.

[57] Wilhelm Gieseler, "Die Fossilgeschichte des Menschen," in Gerhard Heberer (editor), *Die Evolution der Organismen*, Gustav Fischer, Stuttgart, Germany, 1959, p. 962.

[58] David S. Brose and Milford H. Wolpoff, *op. cit.*, pp. 1167-1175.

[59] Carleton S. Coon, *The Origin of Races, op. cit.*, p. 529.

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TABLE 1

Neanderthal fossil man sites in Europe and the Near East

(Coon, 1962)

Site	*Country and Description*
	GERMANY
Neanderthal, near Düsseldorf	Male, 40-50 years; calva and postcranial bones
Neuessing, Kelheim, Bavaria	1 milk incisor
	BELGIUM
Bay-Bonnet, Liège	1 rt. femur, lower end
Engis, Liège	No. 1, baby skull, fragmentary
La Naulette, Namur	Mandible, ulna, metacarpal, all fragmentary
Spy, Namur	No. 1, male or female, 35 years; calotte, fragments of maxilla, 14 teeth, postcranial bones No. 2, male, 25 years; fragments of maxilla and mandible, 13 teeth, postcranial bones No. 3, child; tibia and 2 teeth
	FRANCE
Bau de l'Aubesier, Monieux, Vaucluse	1 milk molar
La Chaise, Vouthon, Charente	No. 1, calva and three molars No. 2, child, 4 years; mandible, 3 teeth, parietal, 1 phalange
La Chapelle aux Saints, Corrèze	1 adult male skeleton
Combe-Grenal, Dordogne	Child, 1 fragment mandible
La Ferrassie, Dordogne	6 individuals: No. 1, adult male skeleton; No. 2, adult female skeleton, skull crushed; Nos. 3, 4, and 6, infants; No. 4, fetus
Grotte de l'Hyène, Arcy-sur-Cure, Yonne	5 individuals, mostly teeth, fragments of mandible and maxilla, fibula, and metatarsal
Grotte du Loup, same	1 molar tooth, fragments of a parietal
Malarnaud, Montseron, Ariège	Male, 21 years; mandible, 1 molar, 1 vertebra
Marillac, Charente	Adult, fragment mandible with 2 teeth
Le Moustier, Peyzac, Dordogne	Male, 18 years; skeleton, complete
Pech de l'Azé, Sarlat, Dordogne	Child, 5-6 years old; cranium

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Site	*Country and Description*
Le Petit Puymoyen, Charente	4 individuals: No. 1, a half mandible with teeth; No. 2, a piece of maxilla with teeth; No. 3, a piece of mandible with teeth; No. 4, two isolated teeth (originals all lost)
La Quina, Gardes-Le-Pontaroux, Charente	About 12 individuals, principally: No. 1, adult female skeleton; No. 2, 8-year-old calvarium; No. 3, 10 + pieces of skull; No. 4, fragment of a mandible; No. 5, various postcranial bones
Regourdou, near Lascaux, Dordogne	Mandible, nearly complete, all teeth, various postcranial bones
Vergisson, near Solutré, Hte. Saône	3 teeth
	BRITISH ISLES
La Cotte de St Brélade, Isle of Jersey	3 individuals: No. 1, fragmentary child's skull; No. 2, 13 teeth and a piece of tibia; No. 3, 13 teeth
	SPAIN AND GIBRALTAR
Bañolas, Gerona, Catalonia	1 mandible, nearly complete, no teeth
Cova Negra de Bellus, Játiva, Valencia	1 right parietal bone
Piñar, Granada	1 adolescent skull, fragmentary
Gibraltar	3 individuals: No. 1, Forbes's quarry, adult female skull, fragmentary; No. 2, Devil's Tower, 5-year-old skull, fragmentary; No. 3, Genista Cave, 1 molar (lost) (Dating is unknown for all three)
	SWITZERLAND
St Brais	1 upper incisor
	ITALY
Circeo (Rome)	3 individuals: No. 1, adult male cranium; No. 2, adult mandible; No. 3, adult mandible
	CZECHOSLOVAKIA
Sipka, N. Moravia	8-10-year-old child, chin portion of mandible
	HUNGARY
Subalyuk, Bükk Mts.	2 individuals: No. 1, adult female mandible, 4 vertebrae, sacrum, 7 limb bones; No. 2, 6-year-old cranium broken into over 90 pieces, various vertebrae, ribs, and metatarsals — said to be Late Mousterian
	RUMANIA
Ohaba-Ponor Cave, Transylvanian Alps	1 first phalange of second right toe
	U.S.S.R.
Kiik-Koba, Crimea	2 individuals: No. 1, teeth, hand, feet, tibia, fibula, patella; No. 2, a newborn infant

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Site	*Country and Description*
Starosel'e, Crimea	1½-year-old child's skull
Teshik-Tash, Uzbekistan	8-10-year-old child's skeleton
	TURKEY
Karain, Adala	1 milk molar
	IRAQ
Shanidar, Kurdistan	7 individuals: No. 1, adult male skeleton; Nos. 2, 3, 4, 5, 6, adult skeletons; 1 infant skeleton
	IRAN
Bisitun, near Kermanshah	1 upper incisor, 1 fragment ulna
Tamtama, near Rezaiyeh	1 fragment femur
	PALESTINE
Mugharet al-Tabun, Mount Carmel	1 adult female skeleton, teeth of 4 individuals
Mugharet-al-Skhul, Mount Carmel	Skeletons of 9 adults and 1 child
Mugharet al-Zuttiya, Galilee	1 fragmentary cranium, Galilee man
Jebel Qafza, Nazareth	Skeletons of 5 adults and 1 child
Shukba, Wadi Natuf	Skeletons of 1 adult and 6 children
Amud Cave, Lake Tiberias	1 nearly complete skeleton
	LEBANON
Ksar 'Akil, near Beirut	1 child's skeleton, "Egbert"

TABLE 2

Classification of lithic technologies

(G. Clark, 1969)

Archaeological divisions	*Dominant lithic technologies*
Lower Palaeolithic	Mode 1: Chopper-tools and flakes
Lower Palaeolithic	Mode 2: Bifacially flaked hand-axes
Middle Palaeolithic	Mode 3: Flake tools from prepared cores
Mesolithic	Mode 4: Punch-struck blades with steep retouch
Advanced Palaeolithic	Mode 5: Microlithic components of composite artifacts

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Carleton Coon (1962) in his review of Caucasoid racial origins contends that many of the "characteristic" features of the jaw and cranium of the western Neanderthals are special adaptations "towards the bitter cold of western Europe in which the Neanderthals lived."[60] Dr Coon finds that the large cranial base, flattened brain case, and flattened brows of the western Neanderthals are combined with "a remarkable forward projection of the face, or beakiness, dependent on the excessive size of the nose."[61] The prognathism of these skulls is also confined to the nasal region. Coon suggests that "the size of the nose in the western Neanderthals, the expansion of the maxillary sinuses, and the forward position of the nose in reference to that of the brain case may have had a survival value under conditions of extreme cold without adequate headgear or protection for the neck."[62] The jaws were also "carried forward by the nasal skeleton."

Features of the jaws and teeth of the western Neanderthals have also been recently analyzed by Carleton Coon (1962) and Brose and Wolpoff (1971). Coon employs ten adult or nearly adult Neanderthal mandibles in his samples. He finds that La Chapelle aux Saints is "probably the only completely chinless Neanderthal mandible." On the other hand, "La Ferrassie, La Naulette, Arcy 2, and Circeo 3 have rudimentary chins." (See Figure 5.) Multiple mental foramina are present on "at least five of the mandibles."[63]

Brose and Wolpoff tabulated the averaged individual mandibular and maxillary anterior summed tooth lengths, breadths, and areas for *Homo erectus*, Neanderthal, and *Homo sapiens* populations. The three groups were compared for statistical significance of the differences by means of the small sample size t-test. The authors found that "while the anterior dentitions of Neanderthals and *Homo erectus* are not statistically distinguishable for length, breadth, and area . . ., there is a very significant dimensional decrease for anatomically modern *Homo sapiens*." Brose and Wolpoff interpreted their results as indicating that "the large Neanderthal anterior teeth are a specific adaptation to the type of extensive use implied by the pattern of anterior occlusion seen in Neanderthal jaws, as well as the general muscularity evinced by Neanderthal skeletal rugosity."[64]

As of 1962 Carleton Coon found that some 138 western Neanderthal teeth were available for study, with published measurements of 45 in the anthropological literature. The size of the Neanderthal teeth falls "in the same general range as those

[60] Carleton S. Coon, *The Origin of Races, op. cit.*, p. 539.
[61] Carleton S. Coon, *The Origin of Races, op. cit.*, p. 532.
[62] Carleton S. Coon, *The Origin of Races, op. cit.*, p. 534.
[63] Carleton S. Coon, *The Origin of Races, op. cit.*, pp. 535-536.
[64] David S. Brose and Milford H. Wolpoff, *op. cit.*, pp. 1176-1177.

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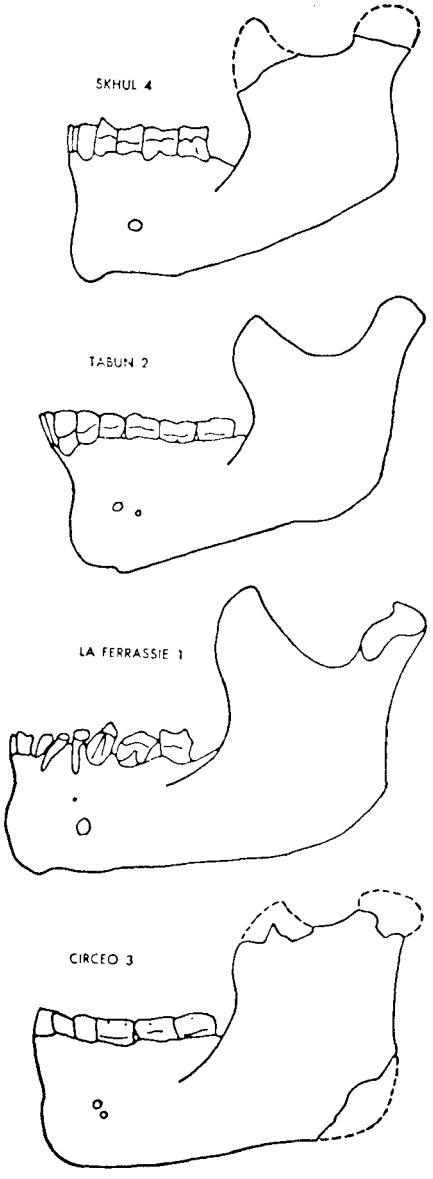
FIGURE 5



Comparison of four Neanderthal mandibles — Skhul 4, Tabun 2, La Ferrassie 1, and Circeo (Coon, 1962)

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of Heidelberg, the teeth of Third Interglacial Europeans, and modern people." Coon finds that "the proportions between molars, premolars, canines, and incisors are normal for Caucasoids." Less than half the Neanderthal molars and premolars were taurodont — *i.e.*, "a condition of the teeth, particularly the molars, in which the fusion of the roots neotenously takes place low down and results in a large pulp cavity." No taurodontism at all was observed in the teeth of La Ferrassie 1, La Quina, Regourdou, and Arcy.[65]

The skeletal remains of La Chapelle aux Saints, Neanderthal, Spy 2, and La Ferrassie 1 were sufficiently complete to permit calculation of estimates of their stature. Coon, for example, estimates that these four Neanderthals "were of about the same height" — ranging from 5 ft. 4 in. to 5 ft. 6 in. (*i.e.*, 163 c.m. to 166 c.m.). He also believes that with their deep chests and heavy bones, the western Neanderthals would have weighed 160 lbs. or more. Their constitutional type was mesomorphic.[66]

Anthropologists from Marcellin Boule in 1911-1912 to Weckler in 1957 have depicted Neanderthal man as walking "in a crouch with bent knees and a shuffling gait."[67] Carleton Coon has pointed out that this view is based upon early descriptions of the first nearly complete Neanderthal skeleton — La Chapelle aux Saints. However, the vertebral column of La Chapelle aux Saints had been shrunken and distorted by age and arthritis. In addition, Dr Coon contends that the bones of this Neanderthal fossil were "inaccurately reconstructed after exhumation."[68] According to Coon, Boule also "faultily reconstructed the cranial base of La Chapelle aux Saints."[69] Boule's reconstruction of the La Chapelle aux Saints' skeleton was immediately criticized by Gustav Schwalbe (1914).[70] More recently Straus and Cave (1957) demonstrated in great detail the completely modern anatomy of the "classic" Neanderthal post-cranial skeletons.[71]

Brose and Wolpoff (1971) also compared Neanderthal and anatomically modern *Homo sapiens* populations with respect to a number of morphological traits, presumed to be characteristic of

[65] Carleton S. Coon, *The Origin of Races, op. cit.*, pp. 539-541.

[66] Carleton S. Coon, *The Origin of Races, op. cit.*, p. 548.

[67] J. E. Weckler, *op. cit.*, p. 4.

[68] Carleton S. Coon, *The Origin of Races, op. cit.*, pp. 542-543.

[69] Carleton S. Coon, *The Origin of Races, op. cit.*, p. 531.

[70] Gustav Schwalbe, "Kritische Besprechung von Boule's Werk: 'L'Homme Fossile de la Chapelle aux Saints,'" *Zeitschrift fuer Morphologie und Anthropologie*, Vol. 16, 1914, pp. 527-610.

[71] W. L. Straus and A. J. E. Cave, "Pathology and the Posture of Neanderthal Man," *Quarterly Review of Biology*, Vol. 32, 1957, pp. 348-363.

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the "classic" Neanderthals. These traits included: forehead height, shape of the parietal bones, parietal height, degree of development of the supraorbital torus, shape of the occipital area, size of the mastoid process, degree of mid-facial prognathism, facial length, orbital shape and size, dental taurodontism, *et al.* Brose and Wolpoff find that no single morphological feature distinguishes all "classic" Neanderthals from anatomically modern *Homo sapiens*. Conversely, all of the presumed "distinguishing characteristics" for anatomically modern *Homo sapiens* occur, with regular frequency, in the "classic" Neanderthals.[72]

Brose and Wolpoff derive two conclusions from their analysis. First, "the few features which distinguish the group means (although not the individual specimens) show a tendency in the Western European Würm group for heavier bunning in the occipital region and more extensive mid-facial prognathism. . . . Second, it is quite apparent that Neanderthals overlap with anatomically modern *Homo sapiens* in almost every morphological feature, as well as almost every metric one."[73]

V

In contrast to the westernmost Neanderthals, Professor Coon finds that the "Mediterranean" Neanderthals (*i.e.*, Circeo 1, Gibraltar 1, *et al.*, "Who lived in a milder climate than that of western France, were less beaky than La Chapelle aux Saints or La Ferrassie 1, and their upper jaws, from nasion to prosthion, were shorter."[74] Neanderthal finds from the Crimea and Uzbekistan in Soviet Russia also show closer affinities to modern Caucasoids than the "specialized" western Neanderthals.

The cranial and skeletal remains of an 18 to 19-month-old Neanderthal infant were found in a cave in the Crimean village of Starosel'e in 1952. Coon describes the skull as strongly rounded, with a high steep forehead. The mandible has a firm chin, while "the back of the head is high and rounded." Dr Coon concludes that the skull is "either an early example of modern Caucasoid *Homo sapiens*, a product of mixture with local Neanderthals, or the end result of an evolutionary progression from Neanderthal to modern European man."[75]

The remains of a nine-year-old Neanderthal boy had been previously discovered in 1938 in a Mousterian deposit in the Teshik-Tash cave in southwestern Uzbekistan. The cranial capacity

[72] David S. Brose and Milford H. Wolpoff, *op. cit.*, pp. 1172-1174.

[73] *Ibid.*

[74] Carleton S. Coon, *The Origin of Races, op. cit.*, p. 533.

[75] Carleton S. Coon, *The Origin of Races, op. cit.*, pp. 557-558.

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was 1490 c.c. (adult capacity estimated at 1600 c.c.). The vault of the brain case is high, while "the forehead is high and well-rounded." Coon describes the skull as "more modern-looking than most if not all of the western Neanderthals" (see Figure 6).[76]

The Czech anthropologist, Dr Jan Jelínek (1969), has recently reviewed and summarized the anthropological status of Neanderthal finds in Central and Eastern Europe. Many of these finds "are little known among scientists in the West." These include Neanderthal finds from Petralona in Greece, Sala in western Slovakia, the Kulna cave in Moravia, and the Subalyuk cave in Hungary. Older Neanderthal finds from Ochoz and Sipka in Moravia were also included in the survey. Dr Jenínek concluded that:[77]

> (1) The Neanderthal finds from Central and Eastern Europe display pronounced morphological variability, even within a single site, and this variability is associated with wide variation in cultural inventory. These finds show, to various degrees and in various frequencies, many of the characteristics that we find fully developed and universal in *H. sapiens sapiens*. Chronologically, they extend into the W 1/2 interstadial, the period to which the oldest finds in this region of Upper Paleolithic Man of the modern type also belong. (2) The Upper Paleolithic fossil man finds . . include individuals of the so-called primitive sapient type, displaying archaic morphological characteristics, again to various degrees and in various frequencies. Associated with this physical variation is, again, wide variation in culture. (3) The evidence thus seems to demand that we classify Neanderthal Man as *H. sapiens neanderthalenis* and Upper Paleolithic Man as *H. sapiens sapiens*.

Neanderthal cranial and skeletal remains have also been uncovered in several locations in Southwest Asia — including the Shanidar cave in northern Iraq and some six caves in Palestine. Between 1953 and 1960 the remains of one infant and six adult Neanderthals were found in the Shanidar cave. Although all the specimens lay in Mousterian deposits, 15,000 or more years probably separated the various finds. The cranial capacities were large, with Shanidar 1 estimated at "probably well over 1700 c.c." Coon describes this skull as having a sloping forehead, but with well rounded parietal and occipital profiles. Morphologically, "the face closely resembles those of the French Neanderthals."

[76] Carleton S. Coon, *The Origin of Races, op. cit.*, pp. 558-560.

[77] Jan Jelínek, "Neanderthal Man and *Homo sapiens* in Central and Eastern Europe," *Current Anthropology*, Vol. 10, No. 5, 1969, p. 492.

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FIGURE 6

Neandertal
(nach SCHWALBE).

Engis, unter 7 Jahren
(nach CH. FRAIPONT).

Teschik-Tasch,
9jährig
(nach GREMIATZKI).

Comparison of three Neanderthal crania — Neanderthal, Engis, and Teshik-Tash (Gieseler, 1959)

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The brow ridges are heavy, but "do not form a continuous bar over the nose."[78]

Some ten crania and fragments of crania have been obtained from the Skhul cave at Mount Carmel, Palestine. The Skhul crania are large, with three of the male skulls having cranial capacities in excess of 1500 c.c. (see Table 3). In their original report on these fossils, McCown and Keith (1939) wrote: "Like Neanderthal man, the Skhul men were big-brained, but the moulding of their head and jaws was modern. And yet, through the anatomy of the Mount Carmel people there runs a substratum of characters which links them to the Neanderthal type."[79]

Carleton Coon (1962) finds that the Skhul crania "fall naturally into two groups," with four skulls showing "both Neanderthal and modern Caucasoid features." Two skulls are described as "neither Neanderthaloid nor Caucasoid but belong to a different racial line." The Skhul crania in the first group are long and low-vaulted, with thick, wide brow ridges. However, the occiputs of the skulls are rounded and there is no nasal or alveolar prognathism. Dr Coon concludes that "the skulls of this group show an orderly progression from a Neanderthal to a modern European form."[80]

Coon (1963) considers the two fossil finds from Swanscombe, England, and Steinheim, Germany, which are dated at 250,000 years — or possibly much older — as *sapiens*, female, and Caucasoid. Dr Coon contends that "from then on all the skulls found in Europe and Western Asia, with one possible exception (Number 5 from the Skhul cave in Palestine, which could have been Australoid) are both *sapiens* and Caucasoid." This includes the Neanderthals, whom Coon considers "exaggeratedly Caucasoid, with long, pointed faces and beaky noses."[81] He finds the nasal and alveolar regions of the Neanderthal skulls to be Caucasoid, while the hands of the western Neanderthals are not notably "different from those of hard-working modern Europeans."[82] The features in which the Neanderthals differed from other Caucasoids are regarded as "mostly if not entirely due to local inbreeding and adaptation to cold."[83] Consequently, Dr Coon

[78] Carleton S. Coon, *The Origin of Races, op. cit.*, pp. 562-564.

[79] T. D. McCown and Arthur Keith, "The Relationship of the Fossil People of Mount Carmel to Prehistoric and Modern Types," 1939, in T. D. McCown and K. A. R. Kennedy, *op. cit.*, p. 333.

[80] Carleton S. Coon, *The Origin of Races, op. cit.*, pp. 565-574.

[81] Carleton S. Coon, "New Findings on the Origin of Races," *op. cit.*, p. 369.

[82] Carleton S. Coon, *The Origin of Races, op. cit.*, pp. 532 and 545.

[83] Carleton S. Coon, "New Findings on the Origin of Races," *op. cit.*, p. 369.

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TABLE 3
Hominid cranial capacities in c.c.
(Saller, 1959)

Hominid group	*Fossil crania*	*Author*	*Cranial capacity*	*Cranial capacity range* (Min.-Max.)	*Group mean cranial capacity*
Pithecanthropus group	*Pithecanthropus* I	Weidenreich	935 c.c.		
	Pithecanthropus II	Weidenreich	775 c.c.	775-935 c.c.	855 c.c.
	Sinanthropus III	Weidenreich	915 c.c.		
	Sinanthropus X	Weidenreich	1225 c.c.		
	Sinanthropus XII	Weidenreich	1030 c.c.	915-1225 c.c.	1056 c.c.
East Asian Neanderthal	Ngandong I	Weidenreich	1035 c.c.		
	Ngandong V	Weidenreich	1255 c.c.	1035-1255 c.c.	1145 c.c.
African Neanderthal	Broken Hill	Weidenreich	1325 c.c.	1325 c.c.	1325 c.c.
Neanderthal transition group	Tabun I	Weidenreich	1450 c.c.		
	Saccopastore I	Keith	1270 c.c.		
	Ehringsdorf	Keith	1510 c.c.		
	Skhul V	Sergi	1200 c.c.		
	Teshik-Tash	Gremjackij	1550 c.c.		
	Ganovce	Vlcek	1320 c.c.		
	Gibraltar I	Kappers	1300 c.c.	1200-1550 c.c.	1371 c.c.
Classical Neanderthal	Neanderthal	Boule	1408 c.c.		
	La Quina	Boule	1610 c.c.		
	Le Moustier	Martin	1350 c.c.		
	Circeo	Weinert	1564 c.c.		
	La Chapelle	Sergi	1550 c.c.		
	La Ferrassie	Boule	1641 c.c.	1350-1641 c.c.	1521 c.c.
Diluvial *Homo sapiens*	Predmost III	Matiegka	1608 c.c.		
	Predmost IV	Matiegka	1518 c.c.		
	Predmost IX	Matiegka	1555 c.c.		
	Predmost X	Matiegka	1452 c.c.	1452-1608 c.c.	1527 c.c.

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concludes that the Neanderthal evolutionary line " is patently Caucasoid."[84]

VI

Carleton Coon (1962) points out that " neither the Neanderthal people nor the Neanderthal tool-making techniques could have sprung up out of nothing." He contends that the " Mousterian culture had already come into being during the latter part of the Last Interglacial, as a derivative of the Acheulian, Clactonian-Tayacian, and the Levalloisian flake techniques."[85] Grahame Clark (1969) in his most recent review of world prehistory finds a clear evolutionary progression " during the Palaeolithic Age in the technology of working flint and stone." This progression takes the form of enlarging technical possibilities " by the adoption of new processes."[86]

Dr Clark classifies the type of dominant lithic technology into five stages or modes, ranging from the Lower Palaeolithic chopper-tools and flakes of mode 1 to the Mesolithic microlithic components of composite artifacts of mode 5. His relation of this succession of stone technologies to the major archaeological divisions occurring in Europe and adjacent areas of North Africa and Southwest Asia is presented in Table 2.[87] Illustrations of the major tool types — choppers, hand axes, flake tools, and blade tools — are presented in Figure 7.[88]

The Mousterian industries of the European Neanderthals, which extended with many variations from the Atlantic seacoast to the eastern Ukraine, " made prominent use of flake tools." Clark contends that " the notion of concentrating on implements struck at one blow from carefully prepared cores is one that seems to have been developed in the northern part of the Lower Palaeolithic world and to have characterized in particular the Middle Palaeolithic Levalloiso-Mousterian province. . . ."[89] Dr Clark finds that mode 2 industries — bifacially flaked hand-axes — " failed to reach south-east Asia or China." Mode 3 industries — flaked tools from prepared cores — " still did not penetrate these regions in the Far East, but on the other hand extended northwards into European Russia and Inner Asia."[90]

[84] Carleton S. Coon, *The Origin of Races*, *op. cit.*, p. 539.
[85] Carleton S. Coon, *The Origin of Races*, *op. cit.*, p. 521.
[86] Grahame Clark, *op. cit.*, pp. 29-30.
[87] Grahame Clark, *op. cit.*, p. 31.
[88] Carleton S. Coon, *The Origin of Races*, *op. cit.*, p. 326.
[89] Grahame Clark, *op. cit.*, pp. 42-43.
[90] Grahame Clark, *op. cit.*, pp. 30-31.

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Chester Chard (1969) concludes that the Mousterian cultures of western Europe developed out of the highly evolved European Acheulian industries termed Micoquian. The Micoquian industries are found in deposits dating from the Eemian interglacial, some 150,000 or more years ago. In Europe at this time, tool kits were becoming more elaborate, the economy more specialized, and hunting methods improved. The northern plains of Eurasia were being settled for the first time. Technologically, Chard (1969) finds that "this is a time of further development and elaboration of existing traditions in stone technology in the direction of a greater number of more specialized tools, the great majority of which are made on flakes."[91]

At Ehringsdorf, near Weimar, Germany, an incomplete adult fossil brain case had been excavated from Kaempfe's quarry in 1925. Carleton Coon describes the Ehringsdorf skull as showing a "closer similarity to Steinheim and Swanscombe than to either Fontéchevade or Saccopastore." Weidenreich's reconstruction of the skull yielded an estimated cranial capacity of 1450 c.c. The endocranial cast is reported as showing "a modern condition in the frontal lobes." Coon concludes that the Ehringsdorf fossil is *sapiens* and "seems to be on the main line of Caucasoid cranial evolution."[92]

Dr Coon describes the implements found with the human remains at Ehringsdorf as Mousterian. They included scrapers, small hand axes, angular scrapers, fine and coarse drills, and crude burins or gravers.[93] Chard contends that the Weimarian industry represented at the site of Ehringsdorf possessed a technology that "was far ahead of its time." He describes this culture as "a blend of late Acheulian (Micoquian) ideas with the earliest appearance of a number of tool types (true backed blades, burins) that are characteristic of *Homo sapiens* at the end of the Pleistocene." Dr Chard concludes that the Weimarian culture "was specialized for hunting on the plains and possessed the first known projectile weapons as evidenced by their stone points." These were probably hand-thrown spears.[94]

Some of the Acheulian techniques and ideas were diffused for the first time from western Europe into central Europe, and later into the Balkans and eastern Europe, during the Eemian interglacial period. These included "the idea of making bifacially worked tools, the technique evolved by the Acheulians in con-

[91] Chester S. Chard, *Man in Prehistory*, McGraw-Hill, New York, 1969, pp. 112-114.

[92] Carleton S. Coon, *The Origin of Races, op. cit.*, p. 506.

[93] Carleton S. Coon, *The Origin of Races, op. cit.*, p. 505.

[94] Chester S. Chard, *op. cit.*, p. 114.

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nection with their handaxes (. . . "bifaces"), and also the Levallois technique of superior flake tool production." However, these Acheulian influences never spread to Southeast Asia, "where bifacially worked tools are only accidental, and the Levallois tortoise-core technique is unknown — indicating continued isolation."[95]

Dr Chard points out that the Eemian interglacial, with its slightly warmer climate than today, "represented a marked environmental change from the preceeding Riss glaciation in many regions." The areas of Europe suitable for human settlement expanded greatly. On the other hand, climatic "conditions in Africa deteriorated." The areas available for settlement contracted greatly, and "the Sahara developed into a major barrier with the increasingly drier conditions." At this time, industries all over Africa — and probably India also — are Acheulian in form. However, from the time of the Eemian interglacial onward, "Africa south of the Sahara became a world apart, developing along its own lines in relative isolation. . . ."[96]

The noted French prehistorian, Francois Bordes (1961), has done much recently to systematize the classification of stone tools.[97] In Bordes's system, "stone artifacts are classified according to explicitly stated attributes of morphology and technique of manufacture." The population of stone tools, termed an "assemblage," is tabulated and described graphically. In this way, "the relative frequencies of different kinds of stone tools from various sites can be compared."[98]

Bordes's studies have demonstrated that the Mousterian cultures of Europe are "a composite or complex of industries rather than any specific one. . . ."[99] Tool assemblages and kits varied from site to site and developed over time. Dr Bordes found that the Mousterian cultures of the European Neanderthals employed 63 different tool types, "indicating a wide range of specialized skills, needs, and activities."[100] These included scrapers, flakes, and points (see Figure 8).[101]

[95] Chester S. Chard, *op. cit.*, pp. 113-114.

[96] Chester S. Chard, *op. cit.*, pp. 112-113.

[97] Francois Bordes, "Principes d'une méthode d'étude des techniques de débitage et de la typologie du Paléolithique ancien et moyen," *L'Anthropologie*, Vol. 54, 1950, pp. 19-34.

[98] Sally R. Binford and Lewis R. Binford, "Stone Tools and Human Behavior," *op. cit.*, 1969, p. 5.

[99] Francois Bordes, *The Old Stone Age*, McGraw-Hill, New York, 1968, p. 98.

[100] Alexander Marshack, *The Roots of Civilization*, McGraw-Hill, New York, 1972, p. 77.

[101] Francois Bordes, *The Old Stone Age*, *op. cit.*, p. 99.

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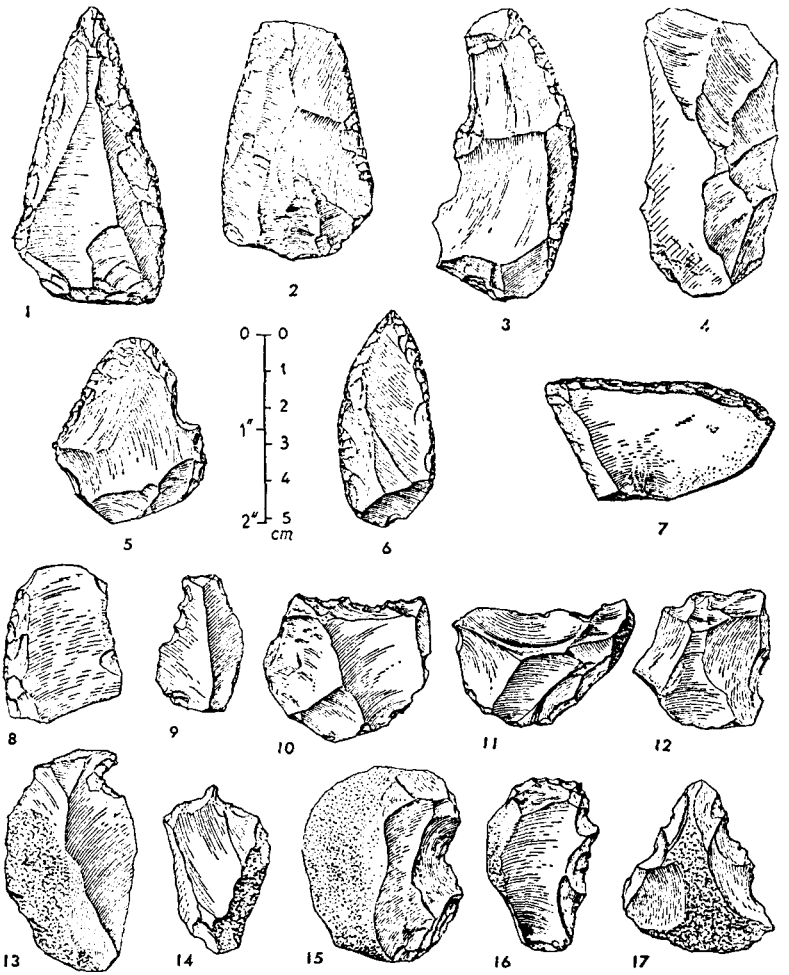
FIGURE 8



Mousterian Tool Types: 1, Point; 2, Double Side Scraper; 3, Side Scraper; 4, Levallois Flake; 5, End Scraper on a Flake; 6, Point; 7, Transverse Scraper; 8, Side Scraper, 9, 10, Denticulate Tools; 11, 12, and 13, Notches; 14, Borer; 15, Notch; 16, 17, Denticulate Tools. (Bordes, 1961)

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Bordes also found a continuity between the Acheulian cultures of Europe, which preceeded the Mousterian cultures, and the Aurignacian or Upper Palaeolithic cultures which succeeded them. In Europe, " the Mousterian has roots that go down to the last interglacial or even to the Rissian glaciation." Dr Bordes lists the sites at Rigabe and La Micoque (Layer 4) in France and Ehringsdorf in Germany as examples of older European industries which had reached the Mousterian level of culture far before the Würm glaciation.[102]

The Early Würm was a time of fluctuating climate, reaching a maximum cold late in the period. Northern Europe became covered with ice, as did mountainous regions elsewhere on the continent. However, the Neanderthal populations remained in Europe and adapted themselves to the changing conditions. Some of the Neanderthal groups, which had developed a specialized hunting economy adapted to the extreme cold, apparently migrated eastward from central Europe across the great northern plain later in Würm I.[103]

Chard describes the Middle Neopleistocene site at Salzgitter-Lebenstedt in Germany as the earliest known example of a cold-adapted group living on the European plain. Salzgitter-Lebenstedt " represents a summer camp of a band of perhaps 20 to 30 persons, apparently occupied for several seasons." At this site " the first really standardized bone tools in the form of points and a picklike antler axe," later known as the Lyngby axe, have been found. The animals hunted for food were mostly reindeer, with some mammoth.[104]

At Tata near Budapest, Hungary, a Middle Mousterian site has been uncovered which is estimated to be about 50.000 years of age. In addition to scrapers and scrapers with bifacial retouch, Bordes reports the find of a " mammoth-ivory ' churinga,' which was once covered with ochre, and an amulet made from nummulite engraved with a cross."[105]

According to Klein (1969), " at least 33 Mousterian occupation sites have been uncovered in European Russia, comprising ten open-air stations and 23 cave sites." The Mousterians are the first known inhabitants of Russia, " settling a large part of European Russia, including all the major river valleys up to at least the latitude of Bryansk (53.15°N.) and quite possibly beyond." Three of the sites are estimated to date from the onset of the Würm glaciation or into the Eemian interglacial: Khotylevo, Il'skaya,

[102] Francois Bordes, *op. cit.*, p. 98.
[103] Chester S. Chard, *op. cit.*, pp. 117-118.
[104] Chester S. Chard, *op. cit.*, pp. 118-119.
[105] Francois Bordes, *The Old Stone Age, op. cit.*, p. 110

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and Volgograd. Dr Klein places their age at 70,000 years or more.[106]

The Volgograd site, which is roughly contemporary with the German Salzgitter-Lebenstedt site, is another example of an early European group living on the open plain at a time of extreme cold. Leaf-shaped points, biface scrapers, and bifacially worked stone projectile points have been found at this site. Bison remains predominated among the faunal assemblage.[107]

As Dr Chard observes, "the ability to live on the plains in a time of cold climate implies construction of artificial shelters." Evidence of such a structure has been uncovered at the Molodova I site on the banks of the Dniester River in the southwestern Ukraine. This site is dated later in the Würm glaciation than the Volgograd site and is estimated by Klein to be about 50,000 years old. At horizon 4 of this site an oval arrangement of large mammoth bones was found, with outer dimensions of 10 by 7 meters. The area enclosed by the oval contained "roughly 29,000 pieces of flint, hundreds of fragments of animal bones, 15 hearths, and a spot of red, ochreous pigment." Dr A. P. Chernysh, the Russian archaeologist who excavated the Molodova site, believes that the large mammoth bones "were probably weights holding down skins stretched over the wooden framework of this structure."[108] According to Chard, "this is the oldest dwelling known."[109]

It is among the European Neanderthals that we find the first conscious burial of the dead. Grahame Clark (1969) reports that "the Mousterian deposit at La Chapelle aux Saints was found to overlie a grave, cut into the rock floor and containing the crouched skeleton of a Neanderthal man; similar burials have been found at La Ferrassie, likewise in the Dordogne, and also at Kiik-Koba in the Crimea." A cemetery of ten graves was uncovered at the Mugharet es-Skhul cave near Mount Carmel, Palestine. Clasped in the arms of an older adult male were "the jaw-bones of a large wild boar."[110]

Ralph Solecki (1971) has investigated over a number of years the Neanderthal site at Shanidar cave in northern Iraq. Some nine Neanderthal skeletons were uncovered from the 28-ft. thick layer of Mousterian deposits. He estimates that the Shanidar cave was occupied for some 60,000 years — from about 100,000 to 40,000 years before the present. Dr Solecki finds evidence that the "lame

[106] Richard G. Klein, "Mousterian Cultures in European Russia," *Science*, Vol. 165. 1969, pp. 257-259.

[107] Richard G. Klein, *op. cit.*, pp. 259 and 263.

[108] Richard G. Klein, *op. cit.*, p. 263.

[109] Chester S. Chard, *op. cit.*, pp. 120-121.

[110] Grahame Clark, *op. cit.*, p. 45.

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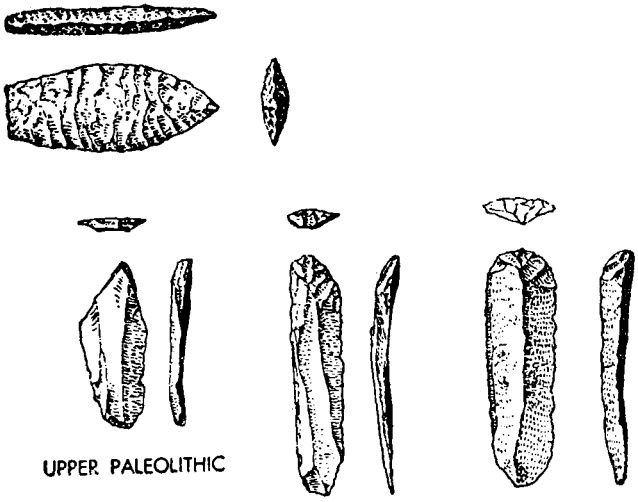
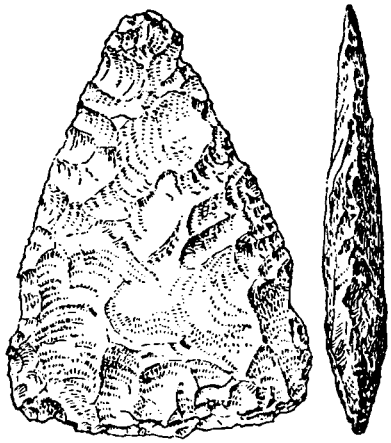
FIGURE 7

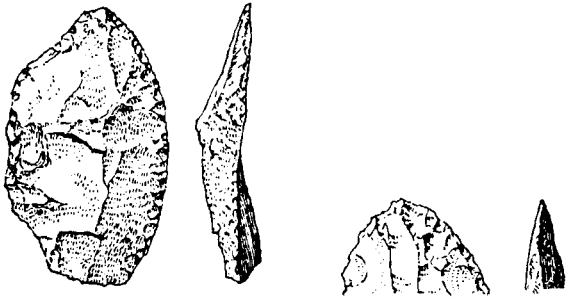


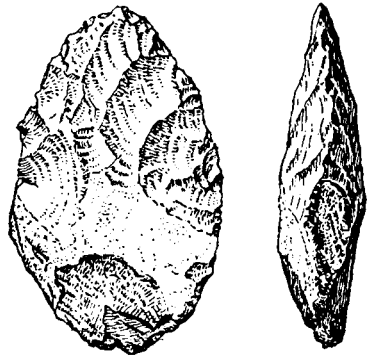
UPPER PALEOLITHIC

BLADE TOOLS



ACHEULEAN (LATE)





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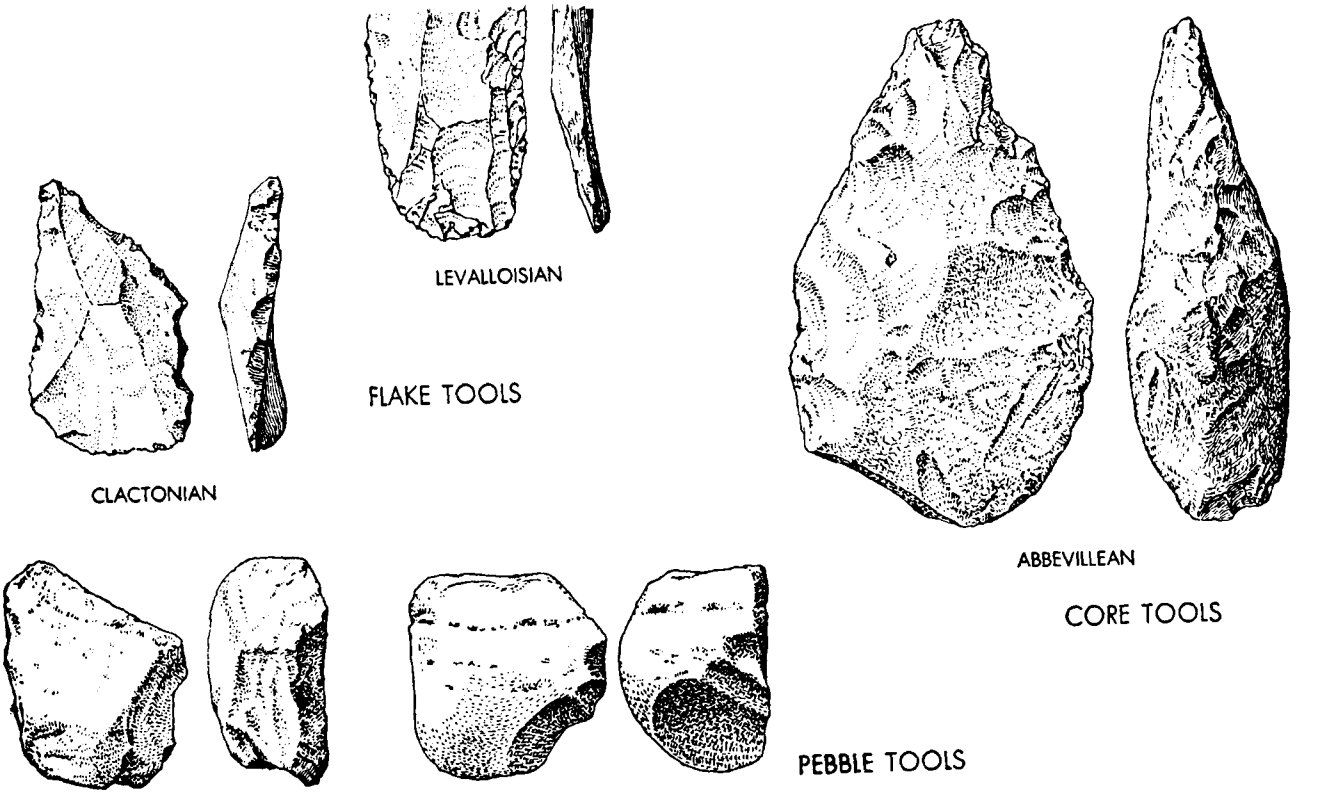

Tool traditions of Europe — pebble tools, core tools, flake tools, and blade tools viewed from both the side and the edge (Washburn, 1960)

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and wounded (Shanidar Neanderthals I and III) had been cared for in the cave. . . ." Shanidar IV had even been buried to the accompaniment of flowers, with at least eight species of flowers recognized by pollen analysis. Dr Solecki concludes that: "In the millions of years of evolution that began with the apelike hominids of Africa it is among the Neanderthals that we have the first stirrings of social and religious sense and feelings: the obvious care with which the lame and crippled were treated, the burials — and the flowers."[111]

The noted German prehistorian, R. R. Schmidt, attempted to delineate "The World-Picture of the Neanderthals" ("Das Weltbild des Neandertalers") in his famous work *Der Geist der Vorzeit* (1934). He found among the European Neanderthals evidence of "the first care of the dead," "the beginnings of magical-proto-logical thought," and a "sense of family." Dr Schmidt also reported the finding of a number of bear skulls, with the accompanying cervical vertebra and limb bones, in an alpine bear cave — the Drachenloch — and in Peter's cave at Belden in Unterfranken, Germany. He suggested that the bear skulls may have been employed in sort of ritual, similar to the preservation by contemporary Eskimos and Indians of the skulls of the animals they hunt in the belief of their return to life.[112]

Additional evidence of the emergence of some sort of religious sense or religious ritual in the Early Würm period has been uncovered at the Neanderthal sites of Monte Circeo, Italy, and the Teshik-Tash cave in Uzbekistan. The skull found at Monte Circeo "had been carefully placed on a sort of platform after removal of the brains and surrounded with a circle of stones," which does "suggest some sort of skull cult or ritualism."[113] At the Teshik-Tash burial, the head of the Neanderthal infant had been "surrounded by six pairs of horns of the Siberian mountain goat, which had evidently been stood upright in a circle while still attached to the frontal bone."[114] As Clark (1970) notes, although "the precise meaning of the ring of goat skulls . . . may elude us, it clearly indicates concern with the dead."[115]

The advances in tool technology, the evidence of the ability to adapt successfully to a deteriorating and extremely cold climate, and the emergence of some sort of magic and religion indicate an

[111]Ralph S. Solecki, *Shanidar: The First Flower People*, Alfred A. Knopf, New York, 1971, pp. 252-253 and pp. 269-270.

[112] R. R. Schmidt, *Der Geist der Vorzeit*, Keil Verlag, Berlin, 1934, pp. 103-108.

[113] Chester S. Chard, *op. cit.*, p. 123.

[114] Grahame Clark, *op. cit.*, p. 45.

[115] Grahame Clark, *Aspects of Prehistory*, University of California Press, Berkeley, 1970, p. 114.

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accelerated pace of cultural evolution among the Neanderthal populations of Europe and western Asia. Chard observes that by the Early Würm period, Eurasia had become " the important area of progress." In contrast to the more advanced cultures of Europe and western Asia, Dr Chard notes " the co-existence of areas of extreme conservatism such as southern Africa (where the local version of Acheulian survived after its disappearance elsewhere as at the famous site of Kalambo Falls), presumably India, and certainly Southeast Asia from what we know."[116]

[116] Chester S. Chard, *op. cit.*, p. 120.

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Herodotus

I

By R. GAYRE OF GAYRE

Herodotus was the son of Luxes and Rhoeo, Rhoio or Dryo, born at Halicarnassus in Caria, in the south-west corner of Asia Minor, in about the year B.C. 485. It belonged originally to the Doric Hexapolis, but at that time was isolated from this confederacy and so became a Persian dependancy. Early in life he began reading on a great scale, and from 464-454 it would appear that he travelled. He was born a Persian subject and continued as such till 30 or 35 years, although by origin was a Dorian. He belonged to one of the noble and wealthy families of Halicarnassus.

Halicarnassus was under Queen Artemisia, who had been allowed by the Persians to rule after the death of her husband. She was the daughter of Lygdamis. On her mother's side she was a Cretan. She also ruled Cos, Nisyrus, and Calydna, at the time of Herodotus's birth. She left her crown to her son Pisindelis (born about B.C. 498) who was succeeded in turn by Lygdamis.

The family of Herodotus belonged, as we have observed, to the upper class. He had a brother Theodore, and an uncle or cousin of the name of Panyasis, who was an epic poet, and of such importance that Lygdamis, suspecting him of treason, put him to death. It is likely that Herodotus shared his relative's views, and was either exiled, or left voluntarily, from Halicarnassus.

His education was Greek, which consisted of grammar, gymnastic training, and music. A knowledge of literature, and a close acquaintance with the Homeric classics would be essential to a gentleman's education. Very early he adopted the Ionic dialect, and his history is written in that language. There is no doubt that as a result of his early devotion to writing and reading he had a vast knowledge of the literature. Homer's Iliad and the Odyssey were familiar. He is acquainted with the poems of the epic cycle. He quotes, or otherwise shows familiarity with, the writing of Hesiod, Olen, Musaeus, Bacis, Lysistratus, Archilochus of Paroe, Alcaeus, Sappho, Solon, Aesop, Aristeas of Proconnesus, Simonides of Ceos, Phrynichus, Aeschylus, and Pindor. He quotes and criticises Hecataeus.

There was never any doubt that with all his reading he was not a recluse. From an early age he travelled in Greece and foreign countries. He travelled in European Greece and Asia Minor more than once and visited all the more important islands, including Crete. He undertook the perilous journey from Sardis to Susa,

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the Persian capital, lived in Babylon, went to Colchis, made another voyage along the western shores of the Black Sea, explored Tyre, voyaged along the shores of Palestine to Gaza, and made a long stay in Egypt.

These travels were chiefly in the period between his twentieth and thirty-seventh years (B.C. 464-447). The visit to Egypt must have been later than B.C. 460 since he saw the skulls of the Persians slain by Inarus that year. Thus B.C. 460-454 would be the period of his visit when the Athenians had great authority there, and Herodotus introduced himself as a learned Greek. His Scythian travels were prior to B.C. 450.

After leaving Halicarnassus, Herodotus settled in Samos. Samos was in the Athenian confederacy and this put him under their protection. This would explain his stay in Egypt, which, by inference, must have been a duration of some years, after which he returned to Samos.

It was after this that he appears to have commenced his monumental *History*.

After seven years or so he returned to Halicarnassus as the tyranny of Lygdamis had led to a revolt. It became a member of the Athenian confederacy. It has been conjectured that some of his *History* would have been written at this time, and he would have recited this to his friends. He was treated with ridicule, and he retreated in about B.C. 446 to Greece.

He sought refuge in Athens. He made recitations of his work there and, as a consequence, in B.C. 445 he was, on the proposal of Anythus, granted a sum of ten talents (a sum equivalent to about £14,000). Athens at that time was the hive of intellectual life. Thucydides, Sophocles, Antiphon, Euripides, Phidias, Zeno, and many others were then flourishing.

However, Athens was not to be his permanent home. In Athens to be really accepted one had to be citizen which enabled one to hold offices, such as Antiphon who was, for a time, head of state, Thucydides who was a general, Sophocles an admiral, and Socrates who even served as an infantryman. However he failed to gain the citizenship, probably because it was very costly, and so, as a colony was being set up in Thurium, Italy, by Pericles, Herodotus joined it, and sailed from Athens in B.C. 443.

Here, he was engaged on editing his work. His work points to a date for its completion of about B.C. 424. He died, therefore, when he was about 60 years of age. He died at Thurium and his tomb was shown to visitors.

His work is concerned with the struggle of Persia and Greece, and the invasion of the latter country, before the eventual throwing out of the Persians. But to that work he gave an introduction, which took up two-thirds of the whole of it!

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By so doing his introduction enables him to write the history of the nations, their geography, manners, and anthropology generally. In, for instance, dealing with Greece he speaks of the migrations, progress, internal factions, trade, religion, and law-giving. Thus he produces a comparative work in the end which is best described in modern terms as *ethnological*. He was not only the "father of history" as he has been termed, but the "father of ethnology." Whoever wrote Genesis x is the first of the anthropologists, with a distinct flair for ethnology, but we have to come a thousand or more years later, to the time of Herodotus, to be given a sympathetic account which is ethnological, of the nations of a world with which he came in contact.

The most important thing for such a writer is accuracy — and most modern writers would agree that he is accurate, in so far as his own observations are concerned. The parts of his work which were under those of others may not be so — but then anyone will be likewise in the same difficulty. Furthermore, he often expresses his doubts about them, but gives them all the same.

His impartiality in dealing with the situations which he recounts is noticeable, even if he may be considered less of an historian who takes note of the undercurrents which go to make the web of the historian's work.

In short he set out to give an account not only of the struggle of Greece against a great empire, but also to give the background of the races who came into contest with it. He therefore continued to set before his countrymen a picture of the world and its various races, their customs and background.

As a writer he received tributes from Lucian, Cicero, and Quintilian. Longinus called him the most Homeric of historians. Dionysius preferred his writings to those of Thucydides.

His style is noted for its form and its simplicity as well as its naturalness.

This, then, is the man and his work.[1]

II

THE FORERUNNERS OF HERODOTUS

Ethnology, which attempted to link race to race, and people to people, began with the tenth chapter of Genesis, which the

[1] This introduction is indebted to Canon Rawlinson, Professor of Ancient History, Oxford, article on Herodotus, *Encyclopaedia Britannica*, Vol. XI, ninth edition, 1880; the author of the Herodotus entry in *Everyman's Encyclopaedia*, reset, revised edition, Vol. VI, p. 452; and the introduction to *The History of Herodotus*, E. H. Blakeney.

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author places substantially in the second millennium B.C. But its classification was not known outside the north-Syrian and Mitannian lands.

Also in Egypt, there was a practical knowledge of ethnology, even if no evidence of a consistent classification existed. Thus, Rekhina-ra, a century before the time of Moses, divides man into the olive-coloured Syrian or Asiatic (that is a man of Asia Minor); the red-skinned Egyptian and southern Arabian; the white Libyan, inhabitants of the Greek islands and the shores of Asia Minor; and the black Ethiopians.

The monuments illustrate all these types. Thus from the pylon of Thothmus III at Karnak we get the Punites; from southern Arabia the people are shown as red; the Syrian painted yellow with blue eyes; and the inhabitant of Damascus, again, is shown as a Nordic type.

For the Greeks anthropology began with the epic poets. Until there were more comparative methods developed Homer and Hesiod were the sole sources of knowledge for the early history of man. Homer had heard of barbarous peoples who were monsters. The one-eyed Cyclops lived in a patriarchal pastoral stage without laws, customs, assemblies. From the explorer, colonist, merchant and soldier the world had greatly expanded by the eighth seventh, and down to the fifth centuries. Greeks had settled on the coasts of Spain, the Rhône, and even the Black Sea, and Cyrene in North Africa had their settlers also. If the author's account is correct.[2] Greeks were trading as far away as Susa, and Phrygians, Lycians, Carians, Lydians and Persians were known to them.[3]

Geographical knowledge was growing. Anaximander, the first map maker of whom we have record among the Greeks, and Hecataeus whose *Description of the Earth* (γῆς περίοδος) paved the way for Herodotus. By the time we come to Aeschylus the Greeks had not only a knowledge of Persians and Greeks but of savage and barbarous peoples as well. From their colonies they penetrated inland, or at least came into contact with other peoples. From the Rhône (where they had founded Massilia — the modern Marseilles) they made contact with the Gauls, a civilised, yet to them a " barbarous," people. From their North African colonies in Libya, such as Cyrene, they learnt of the tribes of North Africa, and probably far beyond. From their Black Sea colonies (of Diocirias and Phasis) they made contact with the warlike tribes of the Caucasus, and from Kertch (Ponticapaeum) they heard of the customs of the savage Scythians of the Crimea. Beyond these

[2] R. Gayre of Gayre, *The Syro-Mesopotamian Ethnology as Revealed in Genesis x*. The Armorial, Edinburgh, 1972. Ionians were settled at Phut (Libya) as early perhaps as the twelfth century B.C. or even earlier.

[3] E. E. Sykes, *The Anthropology of the Greeks*, 1914, p. 4.

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tribes rumour must have been rife of others, more strange and more barbarous.

To the ancient Greeks there was a "Golden Age" from which mankind had fallen. It is, therefore, not surprising that amidst all this speculation rumours of it should crop up from time to time. Thus we read of the Gabii, the men of the north, who were among the most just. By the time of Aeschylus the nomad Scythians had become well known for a famous well-ordered life.[4]

Hesiod was the principal exponent of the Golden Age of man. Pelasgus, according to him, was the ancestor of the earliest Peloponnesians. Asios, the epic poet, described him as the first man. Pausanias, in the last stages of Paganism, accepted this tradition, although saying that the earth must have borne other men as well. The Athenians insisted on their autochthonous origin, in Cecrops and Erechtheus.

The origin of man, according to the Argives, was the son of the river-god Inachus, in other words Phoroneus, and it was he and not Prometheus who produced fire for man.

The belief in the Golden Age appears to have come from the traditions of the pre-Achaean "Pelasgians." They were in possession of Greece from an early time, and they could well claim to be descended from the Arcadian Pelasgian tradition of descent from the Earth.

The Achaeans, on the other hand, are invaders who had no regard for the traditions of the conquered. They had the Olympian gods, and they were descended from the gods.

The fusion of the two stocks produced the two strains of tradition which existed side by side, often alternating with each other, and both are to be found in Homer and Hesiod. But Homer shows that the Achaean noble did not abandon his semi-divine descent. He was not descended from a stock or stone, as Penelope courteously remarked to a distinguished stranger, like the common earth-born Pelasgian.[5]

Hesiod's doctrine of the Golden Age which stretched into the Iron Age was important to those philosophers and theologians such as Plato, and all who believed in the creation of man. The gods were blessed (even if not faultless) and must have intended the creatures whom they created to be happy.[6] This appealed to the Greeks because, among other things, it recorded a dim past prosperity in the Aegean civilisation. For the third race of men, the age of bronze, delighted in war and were the first to eat animals. As Sykes points out,[7] they were perfectly well aware

[4] Aeschylus, *Prom. Sol.* fr 8.
[5] E. E. Sykes, *op. cit.*, p. 31.
[6] E. E. Sykes, *op. cit.*, p. 33.
[7] E E. Sykes, *op. cit.*, p. 34.

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that the age of bronze proceeded that of iron, and Homer, although idon was in common use in the tenth century B.C., speaks of bronze weapons, utensils and house decorations, and Hesiod lived at the end of this traditional period. Long after Hesiod, the ironsmith retained the old name of worker in bronze (χαλκεύς).

The doctrines of Hesiod taught that there was not a limitless evolution, but rather there was a rise and fall, and he wished he had died before or had been born after his own age. Who is to say that he was wrong in this. Darwinian evolution has taught us of the ascent of man, but, it has not taught us, in the late twentieth century A.D., that man has in fact progressed at all. At first there was progress, even the brain capacity of Neanderthal man was greater than *Homo sapiens*. As man has increased on the earth he has made material progress, but what of his spiritual and moral development? We are now beginning to realise that there is involution as well as evolution. Man has so increased on the earth and squeezed himself into such little space that this has led to a collapse of morality and spiritual values. The ever-continuing progress which was taught a century ago is not so optimistically held today.

Therefore, we turn a full cycle, and we are at once with the ancient Greeks who had little faith in the future progress of the human race.

While Hesiod taught of a Golden Age Homer (in contrast) was obsessed with one which went back to an age of savagery. Thus, we read of the Cyclops and the Pygmies. We read of the Arimaspi of the epic poet Aristeas. Hesiod, himself, was not free from these superstitions for he writes of the "Half-dogs" and the "Big Heads."

We first read of the ascent of man in the writings of Xenophanes and Aeschylus. In the latter's drama he deals with the ascent from the savage condition. The Epicurean architect followed the same philosophy.

While the Greeks gradually came round to the idea of arising from savagery they could never have understood the mentality, for instance, of the black races. They were quite incapable of understanding that savages are not philosophers.

Hesiod attributes the origin of gods and themselves to a common source, more clearly defined by Pindor — "we both draw breath from one mother."[8] This looks remarkably like an echo of a matriarchal conception of creation. This is the All-Mother, the Earth, from whom men are sprung. The Earth-mother found a partner, and from the union of Heaven and Earth came all things.

[8] Pindor, *Nem.* VI, 1.

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Homer while not consistent, lays stress in Zeus father of man and the gods. He believes that man's origin is in some way dependent on the gods.

As he holds that man was in the golden and silver ages made by the earlier gods who lived in the time of Chronos[9], it looks as though there is in these legends traditions of an earlier civilisation swept up into them.

There is another aspect which should not be overlooked. Whatever their philosophy might say, the ancient Greeks were not equalitarians. Thus those of noble parentage were derived from the gods and those who were not were not of the same origin. Thus Deucalion and Pyrrha. The common people (λαοί) are created from stone (λάος) whereas Deucalion is the son of Prometheus of divine generation. Again, Aeacus, the ancestor of a famous clan, son of Zeus and Aegina, grew up alone on his mother's island, until the Father of Man and gods turned all the ants into men and women to be his companions and servants.[10] There is, as Sykes points out, a difference between the lineage of a noble family, who are descended from a god and the common people who are only created.

Greek thought was impregnated with the cycle of reincarnation, and this has to be appreciated in order to understand the roots of the anthropology of these early ages. This led to a cyclic concept in their outlook. There was a general disbelief in progress. While we may consider this as erroneous, I am not so sure we are correct. Material progress there has been, but spiritual and moral is another thing. These ideas are with us today because of the doctrine of evolution. But, as I have pointed out, if there is evolution there is also involution, and if there is eugenic breeding there is also dysgenic, and the latter has been winning the battle for the last hundred or more years, with accelerating progress. Therefore, I can well see the force of this Greek argument.

The Greek also did not believe in racial mixing. The Greek and the barbarian could not mix.

Of the physical side of man's origin Anaximander believed that man arose from fish, which when grown, burst, and spewed out men and women! However, this may be a reminiscence of the stories of Oannes, the Assyrian man-fish or Dagon, and so a brilliant but premature anticipation of Darwin.[11]

Empedocles, in the fifth century, according to E. E. Sykes,[12] was able to enunciate a doctrine, no matter how imperfect, which

[9] *Odyssey*, XX, 202.
[10] E. E. Sykes, *op. cit.*, p. 29.
[11] E. E. Sykes, *op. cit.*, p. 49.
[12] E. E. Sykes, *op. cit.*, p. 58.

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was the forerunner of evolution, and his law (had he formed one) would have been the survival of the fit, rather than of the fittest. This was at its most primitive and earliest beginnings, the selection theory on which later evolution was to be built.

The Greeks considered themselves as apart from the barbarians, and they were markedly exclusive. Consequently it is wrong to infer, as some do, that they were liberal in their attitude to other peoples and races. The Lacedaemonians were the only Greeks who did not use the term *barbarian* for all foreigners — they instead employed the term *strangers*.

III

THE AGE AND DOCTRINES OF HERODOTUS

It is in Herodotus as the "father of anthropology" that we are interested. He is the best of the ancient observers without any doubt, and so amply rewards our study.

He travelled by sea and land extensively throughout the first half of his life, if not later, and he gathered information as he went.

As we have already observed, from the eighth and seventh centuries B.C. there had been an enormous increase in travel. These voyages led to the pilots writing *Portolani*. Such as that which was a guide, to the Eyrthrian, which was, originally, the Indian Ocean, but in later times became restricted to the Red Sea and immediately beyond.[13] These gave anthropological information, as does that of the later Red Sea book.

The result of these books was that knowledge of coastlands, and their people, were becoming available. Travellers overland compiled similar books. Therefore the beginnings of anthropology were found within them. That he drew upon these pilots for some of his information, as well as upon his own observations where he coasted along on board, is clear from the fact that, for instance, he tells us that he knew the rivers one by one, as they ran into the Black Sea.

Maps, too, were being produced by the seventh and sixth centuries B.C. In Ionian Greece scientific cartography was evolving.

Therefore, Herodotus was born at a time when a person could take this early knowledge of foreign peoples, not only from the great ease with which he was able to make his journeys, but from the steadily accumulated knowledge of the coastlands

[13] R. Gayre of Gayre, *The Origin of the Zimbabwean Civilisation*, 1972, pp. 95 and 165.

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and the interior of the countries, from *Pilots* and overland merchants' directions, as well as from maps. As he moulded from these sources of knowledge the first presentation of comparative ethnology, it means that he became the father of it, and from him stems all the work in anthropology and ethnology thereafter. He was not the first ethnologist — that belongs to whoever formulated Genesis x, a thousand or fifteen hundred years before his time. But that document is classifactory, and is ethnological solely, whereas Herodotus is both ethnologist and anthropologist.[14] Furthermore, it gives other information but rarely, as an aside only, whereas Herodotus is concerned to give as much as he can. He is able to introduce his anthropological theme discursively, and often anecdotally, and so is never dull. One picks him up to read a passage and goes on far beyond it. J. L. Myres[15] claimed that " so far as Herodotus presents us with an ordered scheme of anthropological thought with a science of anthropology, in fact, he is little, if at all, behind the best of our own day."

The works of Herodotus are two-thirds introduction and one-third a history of the Graeco-Persian war. The two-thirds are frankly anthropological, and even in the one-third concerning war there is much anthropological material.

Stanley Casson[16] says, quoting Herodotus:

> " You may speak scornfully of the barbarians and of all those savages who deserve your contempt for not possessing the culture which you have. But if you are really cultured it is your duty to examine these barbarians and to make yourself acquainted with their habits. Then and then only will you deserve to have some pride in your own culture. So listen to what I have seen myself and what reliable men have told to me. What I give you are plain facts, not theories or assumptions. The world is a mosaic of strange peoples, all of them are human beings. We are told that man emerged from the animals and became just a better kind of animal than most. But Greeks are not the only men in the world. There are some who are not yet wholly emerged from the animal stage. It is our duty to look at the more backward examples so that we too may move forward and not be surpassed by some other people who will soon look on us as we do on the savage Scythian or the murderous anthropophagi."

That in effect is the lesson of the *Histories of Herodotus*, a

[14] See R. Gayre of Gayre, *The Syro-Mesopotamian Ethnology as Revealed in Genesis x, op. cit.*

[15] J. L. Myres, *Anthropology and the Classics*, p. 135.

[16] Stanley Casson, *The Discovery of Man*, Hamish Hamilton, London, 1940, p. 53.

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book whose inspiration is so deep that it is not obvious, whose pages hold the thought and researches of the first great investigator of the nature and customs of mankind.

This is well said. Herodotus stands out in his time — and all time — as the first real investigator into the customs and nature of man — and so is quite fittingly called the *father of anthropology or of ethnology.*

As I have already said, his home at Halicarnassus was a Dorian colony. This had been founded upon a pre-Greek civilisation.[17] Therefore, he was fully conscious of race as a difference not only between the Halicarnassians and others, but probably between the upper class and the rest — for it is likely that they alone were truly of Hellenic blood.

Consequently, his anthropological studies could start at home, and then be followed by the peoples of the coastlands on which he lived. At Caria was evidence of surviving matriarchy and on Lemnos was spoken a non-Greek language.

These then were his starting points. His longest voyage seems to have been to the Black Sea and the Crimea, and up their rivers into Rumania and South Russia.

The idea of " noble savage," of Rousseau and the Enlightenment, had no time wasted on it here. Herodotus notes the facts plain and unvarnished, and with all their horror, where necessary. Such a case is where he mentions the furious Neuri who sacrificed any Greek or other shipmaster and his crew who put into their land, and where he mentions the anthropophagi who were the most savage of races, and cannibals.

Herodotus has been capable of being tested by archaeology in many particulars. In all of these he has not been found at fault. Indeed, Casson[18] is quite right in saying that " in every case where the results of excavations can be brought to bear on the more concrete facts he describes, he is shown to be meticulously accurate. For his descriptions are always given devoid of predispositions or assumptions, and he is perfectly open-minded. ' Nothing is impossible, if you allow time enough for it to happen.' Here again one detects that early training in evolutionary speculation which must have been one of his results of his residence in Ionia."

The views of Herodotus were racially conscious as a Greek, yet at the same time he had a breadth of conception which went far beyind the narrow confines of Greece. Again, he did not experience the full impact of the colour problem as our genera-

[17] See R. Gayre of Gayre, *The Syro-Mesopotamian Ethnology as Revealed in Genesis x, op. cit.*

[18] Stanley Casson, *op. cit.*, p. 51.

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tion has done. The only people of colour whom he knew were the Nubians and Indians, both civilised peoples, and neither of them Negroid; and some accounts of savage peoples south of the Sahara; therefore to say the Greeks had no feeling of colour is wholly wrong, in the sense that if one does not perceive a problem so there is no reaction to it. That they were, for all that, racially conscious is plain enough in their contempt for foreigners — the *barbaroi*. The thing about Herodotus is that he modified and toned down this feeling, but, even so, it was to study them to have the more pride in one's own culture. He says: "If you are to pose as really cultured it is your duty to examine those barbarians and make yourself acquainted with their habits. Then and then only will you deserve to have some pride in your own culture."

As we have already observed Herodotus believed in evolution for he says: "We are told that men emerged from the animals and became just a better kind of animal than most. But Greeks are not the only men in the world. There are some who have not yet wholly emerged from the animal stage."

He, therefore, did not accept the Golden Age as taught by Hesiod and others. The fact that he says that men say we come from animals means that he was not the originator of the idea — but he gave it currency.

The age, therefore, in which he was born afforded every opportunity for this anthropological exposition. Maps existed which showed the known world, men's minds were opened both geographically and also concerning the origins of the peoples of the earth. Cargo ships were trading in and out of the numerous small harbours, so that he found little obstacle in reaching other lands. The age of Herodotus, without a doubt, was prepared for such a work as his and he was prepared to accept travelling to see it.

First of all it should be observed that he was far less credulous than his contemporaries. For instance he is no more able to accept the Aechylean idea of the noble Scythian than I am that of Rousseau with his noble savage! He says, for instance, while approving of one Scythian custom, he frankly cannot admire another.[19] Of course, he cannot be acquitted of all credulity. Who could at that stage of knowledge? He was a sceptic but not consistently so. After all, in any case, that is no bad thing, as one may well throw the baby out with the bathwater if one is not careful. He reported what he heard, but not with conviction, such as the one-eyed race of the Arimaspi. "The story runs, that the one-eyed Arimaspi purloin it from the griffins; but here I am too incredulous, and cannot persuade myself that there is a race

[19] Herodotus, *History*, Bk. IV, chap. 46, if., and Bk. VI, chap. 84.

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born with one eye who in all else resemble mankind."[20] He was writing where there was no accepted principle to lay down how a work of anthropology should be conceived, and when surrounded by prevailing if erroneous ideas. He cannot, therefore, be expected to produce a model text book. But his work was a collection of ethnological facts such as the world had not seen before. He laid down the foundations of an inductive method. His was a broad comprehension system by which he made his study of races, unlike much modern work which is to study them, or even small sections of them, intensively — to the ultimate loss of perspective and horizon in many cases.

Herodotus realised that the family was the basis of the tribe and the state. As a consequence he pays attention to all the possible forms of relationship. In Lycia he studies mother-right, but in Thrace he is interested in suttee. In the case of the Agathyrsi it is promiscuity of the sexes. While when it comes to Babylonia it is the marriage market. His comment is sparse. Divergence from Greek methods is not for him to comment upon. Only occasionally does he become the moralist rather than the anthropologist. Thus, in speaking of the Agathyrsi he says that a body of women arose in order that all men might be brothers.[21]

Herodotus believed that each race had a right to govern itself by its own standards. It is entirely wrong to force the pace of development and to break down moral and racial principles. Thus he claims custom is king of all. There are many such kingdoms but all have equal claims to their own territory. He believed that native laws did not arise today, or yesterday, but long before.

His work is a mine of information and so it was not long before[22] some of the teachers of the sophists had ransacked it for evidence to support the fashionable teaching of relativism.

Herodotus, in his approach, did not indulge in the Greek myths. For instance, Hecataeus told the Egyptian priests that he was the sixteenth generation in descent from a god, to which, of course, they replied that they were some thousand of years old even at that time. Herodotus, in contrast to these fantasies, says he did not genealogise his own line. He was well aware of the comparatively recent origin of the Greeks compared with Egypt or Babylonia. There was, therefore in Herodotus a scientific spirit, borne of the knowledge which his widespread researches and travels had taught him. Plato was influenced by him in this regard, and he realised the long period of time which had elapsed in Egypt compared with Greece.

[20] Herodotus, *op. cit.*, Bk. III. chap. 116.
[21] Herodotus,*op. cit.*, Bk. IV, chap. 104.
[22] As E. E. Sykes, *op. cit.*, p. 15, points out.

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Herodotus made it his business to study in less than metropolitan centres. Thus in Egypt, he did not visit only the great centres of their civilisation. He came into contact with all levels of human development. He mentions the most savage customs with hardly a degree of disapproval. Occasionally he will do so as concerning the prostitution of women at the temple of Mylitta in Babylonia.[23] Of this we shall have something to say shortly in connection with the truthfulness of the author.

In this indifference (or apparent indifference — for they are not the same thing) he is in fact the true anthropologist. As Sykes points out:[24]

> His business is not to moralise, but to observe. Nor is he really careless; his whole outlook shows that a deep reverence for custom, even if distasteful or horrible, is not lightly to be altered. Only a madman, he thinks, would laugh at the habits of another race. This is not indifference, but respect for the law which — how mysterious is its working — is the unwritten ordinance of gods. Custom is custom. . . . So Pausanias, remembering his model Herodotus, passes even the savage practice of human sacrifice — lingering or believed to linger, in remote parts of Greece itself as late as the second century of our own era — with the remark, "let it be as it is, and as it was at the beginning."[25]

Herodotus divided people traditionally into races (or ἔθγεα) and accepted it as a factual division of mankind. He saw the Greeks as divided from other stocks by blood, language, culture, religion, and their myths and traditions. He assumed a relationship among Greeks, and the blood is supplemented by language, religion, and culture, but it is the blood relationship which is significant.

As regards language, he was perfectly aware that nations could have adopted that of another people. He would not have fallen into the error of talking of "Black Englishmen" as some English members of Parliament have done. As regards religion, he may have been mistaken as regards the derivation of Greek gods from Egyptian, but this depended upon what gods he was envisaging. At the root of Greek religion there were the gods and goddesses of the pre-Archaean periods. Here we have the mother goddess and other elements which are in common with Egypt's religion and that of Syro-Mesopotamia, and Canaan. Consequently Herodotus was not wholly wrong in his assumption.

[23] Herodotus, *op. cit.*, Bk. I, chaps. 196 and 199.

[24] E. E. Sykes, *op. cit.*, p. 75.

[25] Herodotus, *op. cit.*, Bk. I, chap. 40.

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The temple of Carian Zeus, to which he alludes[26] and to which Mysians and Lydians had access by right of race, was rightly based. For we have shown in an essay, *The Syro-Mesopotamian Ethnology as Revealed in Genesis x,* that the peoples of Lud were of Indo-European stock. Consequently, Herodotus is not at fault in this instance, when he speaks of those who spoke the Carian language without being of Carian blood being excluded.

Herodotus believed that certain customs could be invented independent of each other. He noted, for instance, that the warrior-caste of Sparta, and all the Greek states except Corinth, and the warrior-caste of Egypt had much in common. He could, therefore, have evolved a theory of cultural diffusion, especially so far as Sparta was concerned, since their kings were supposed to have had Assyrian and Egyptian ancestors, but did not. He noted that " Thracians, Scythians, Persians, Lydians, and almost all barbarians despised craftsmen in comparison with other citizens and especially with soldiers." Yet he could have said that these were military peoples, and as regards the Thracians, Persians and Lydians were basically of the same stock.

He quite rightly believed that culture could be borrowed, and is therefore of no evidence of relationship but merely of contact. The Athenian women borrowed first the Dorian and then the Cerian dress, the Persians borrowed from Media and Egypt, while one, at least, of the Persians vices is derived from Greece.[27]

On the other hand, the Colchian practice of circumcision he linked with relationship to the Egyptians. But as they alleged they had the custom in common with Egypt, the argument, in fact, did not hold good. The Phoenicians and Syrians were not, originally, circumcisors, having learnt it from the Egyptians.

In this, therefore, Herodotus erred. However, the vacillations of Herodotus in this question of race occurred because the Greeks seriously thought that the physical and mental traits were entirely environmental in origin. Thus, a younger contemporary of Herodotus, Hippocrates, said that " you will generally find that the human physique and character follow the nature of the country." The colour of the skin was taken to be caused by the action of the sun and nothing more.

In the case of Herodotus there is frequently certain misunderstanding since for many of the peoples with whom he is dealing are of the same broad racial group. Thus, when discussing the Sigynnae, a Danubian tribe claimed to be of Median descent,

[26] Herodotus, *op. cit.*, Bk. I, chap. 171.

[27] Herodotus, *op. cit.*, Bk. II, chap. 169; Bk. IV, chap. 53ff.; Bk. V, chap. 87; Bk. I, chap. 135.

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Herodotus could claim no grounds for the relationship beyond similarities of dress. There was perhaps none, except for language, which he probably did not know. Migrations were taking place at all times and there was no reason to doubt that the story was correct.

Concerning the origin of the Greeks, Herodotus knew that there were pre-Greeks, the Pelasgians, who had been overwhelmed by the incoming Hellenes. From the Pelasgians came, so it was claimed, the Arcadians as well as the Athenians. The Dorians, from whom he was himself descended, as Halicarnassus was a Dorian settlement, were alone truly Hellenic. He considered that the older Pelasgians had learnt the language of the conquering Hellenes.[28] These two stocks thus fused together.

It is said that the Greeks paid little attention to race and a few years after Herodotus we find Isocrates, who was fantastically anti-barbarian, writing: " Our city has caused the name of Greeks to appear no longer a sign of blood but of mind; it is those who share our culture who are called Greeks rather than those who share our blood."[29] But this could not have been a universal view as is clear from the exclusion from the temple of the Carian Zeus whom we have mentioned. However, as it was a developing trend it would mean that those under Greek culture would in the end be reckoned Greeks — and as this tendency spreads the decline of Greece would occur, as it certainly did. This, of course, was the doctrine of Kossina, and the Nazis, that the type did not matter; what did was having inwardly the " Nordic " soul! But the view echoed in Plato is that if the Athenians are superior to the rest of the Greeks it is because they are not contaminated by barbarian blood.[30] His objection to slavery is typical as it was against Greeks being enslaved.

Having given some idea of the doctrines which were held by Herodotus we will now proceed to discuss some of his anthropology as we find it recorded in his books, and in more detail than we have already given here.

IV

SOME NOTES ON THE NINE BOOKS OF HERODOTUS

In the first book our author sets out the background of his story. He deals with the cause of war between Greece and Persia.

[28] Herodotus, *op. cit.*, Bk. I, chap. 56f.
[29] E. E. Sykes, *op. cit.*, p. 87.
[30] Plato, *Polit.*, 262D, Rep. 470C.

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The aggressions of Croesus, the preparation of Croesus against Cyrus, his seeking a Greek alliance, invasion of Cappadocia, and war with Cyrus. The manners or customs of the Lydians are dealt with as well as the Medes and Persians. Then there is the war and the reduction of the Asiatic Greeks, with the attacks upon the Carians, Cannians and Lycians, and their submission to Persia. The conquest of Upper Asia follows, and Cyrus also marches on Babylon. The expeditions of Cyrus against the Massagetae, the description of the Caspian, and the defeat of Cyrus.

Throughout the whole of this book, however, there is a discussion of origins both of men and of custom and it is with these we propose to deal.

Lydia forms an early part of the story and they appear to stand apart from the other settlements on the west coast of Asia Minor, which were Greek settlements. They were an older people on these coasts, and this would seem to have been the case as they are mentioned in Genesis x as Lud, a people of Indo-European origin. But from the account of Herodotus, in his day they appear to have been acculturated to the Greek civilisation and were beginning to make offerings at Delphi. Of this stock came the vastly wealthy Croesus who was finally overthrown by the Persian King Cyrus.

The other settlements on the coast were Ionian in the main. Judging by Genesis x, this term, a thousand years earlier, had referred to a truly Asiatic people. The incoming Greeks had probably conquered them in the remote historical period and taken their name, just as the English call themselves Britons. In addition, such settlements as Halicarnassus were Spartan in origin.

Herodotus raises the question of the Pelasgians, whom he thinks were the ancestors of the Athenians, as well as those of the people of Creston, and the Placians. Now first of all, and this is mere speculation, I have wondered if the Palesgians could have been connected with Peleg in Genesis x, in whose day the " earth was divided," whatever that would mean. In which case they were certainly an Indo-European people, but of a different line from the Greeks. In any event Herodotus makes the language of the Pelasgians a barbarous tongue unlike Greek.

That the region which was occupied by the Athenians was beforehand Ionian could mean that it was occupied by a west Asiatic people, and then was occupied by the Pelasgians, who were, if my theory is correct, Indo-Europeans, to be followed later by a Greek population. The difference between the Lacadaemonians and the Athenians was that between the Doric and the later Ionian.

The people of Boetia were a Graeco-Phoenician stock. Hence

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the Greek tragedians in plays about Thebes invariably speak of the Thebans as καδμεῖοι.

Herodotus makes the Pelasgians the Hellenes, and the Athenians, as they entered that body, changed their language. On the other hand, he says that the Hellenes had never changed their speech since their origin. This appears to be self-contradictory, if we do not observe his statement that the Hellenic was a branch of the Pelasgic which separated from the main body. In other words they were close relations, but those who remained Pelasgic had a barbarous and primitive speech different from the later developed Greek of Athens and other places.

He also derived the Umbrians (which means almost the whole of Northern Italy) from a colony of the Lydians, who took the name of Tyrrhenians.

From this we have to understand sea connections. All these peoples, once they had reached the coastlands of Asia Minor and of Greece, took to the sea and quickly spread throughout the Mediterranean.

From dealing with strictly ethnological questions he passes on to deal with matters of a social, anthropological and ethnological nature. The account not only in this first book, but throughout, deals with consultation of the oracles at Delphi and elsewhere. Herodotus shows a belief in the oracles — who were, when all is said and done — mediums. They were also remarkably accurate, even if they did make, on occasions, a prophecy which could be interpreted either way.

In describing Babylon he tells of their customs and particularly of those of marriage.

> Once a year in each village the maidens of age to marry were collected together in one place; while the men stood round in a circle. Then a herald called up the damsels one by one, and offered them for sale. He began with the most beautiful. When she was sold for no small sum of money, he offered for sale the one who came next to her in beauty. All of them sold were to be wives. The richest of the Babylonians who wished to wed bid against each other for the loveliest maidens, while the humbler wife-seekers, who were indifferent to beauty, took the more homely damsels with marriage-portions. For the custom was that when the herald had gone through the whole number of the beautiful damsels, he should then call up the ugliest — a cripple, if there claimed to be one — and offer her to the men, asking who would agree to take her with the smallest marriage-portion. And the man who offered to take the smallest sum had her assigned to him.

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The marriage-portions were furnished by the money paid for the beautiful damsels, and thus the fairer maiden portioned the uglier. No one was allowed to give his daughter in marriage to the man of his choice, nor might anyone carry away the damsel whom he had purchased without finding bail really and truly to make her his wife; if, however, it turned out that they did not agree, the money might be paid back.

However, he seems to have thought that the custom had fallen into disuse, although, in fact, we find that writers of the Augustan age mentioned the custom as still existing in their day.

Chilperic Edwards[31] considers this story to have been a garbled one, not distinguishing between bride-price and dowry, both systems being operative in ancient Babylon. Nevertheless, Edwards says: "Herodotus was quite correct in saying according to the law, if the parties did not agree the bride-price was returned. He was also rightly informed that in his time the custom of paying a price for the bride had fallen out of favour. The most serious mistake was in supposing that Babylonian marriages were all arranged at one time."

However, when he comes to touch upon another custom he makes one of his very few moralising judgments. It is in reference to every woman once in her life having to go into the temple of Venus. Thus he writes:[32]

The Babylonians have one most shameful custom. Every woman born in the country must once in her life go and sit down in the precinct of Venus, and there consort with a stranger. Many of the wealthier sort who are too proud to mix with the others, drive in covered carriages to the precinct, followed by a goodly train of attendants, and there take their station. But the larger number seat themselves within the holy enclosure with wreaths of string about their heads — and here there is always a great crowd, some coming and others going, lines of cord mark out paths in all directions among the women, and the strangers pass along them to make their choice. A woman who has once taken her seat is not allowed to return home till one of the strangers throws a silver coin into her lap and takes her with him beyond the holy ground. When he throws the coin he says these words: "The goddess Mylitta prosper thee." (Venus is called Mylitta by the Assyrian.) The silver coin may be of any size; it cannot be refused, for this is forbidden by the law, since once it is thrown it is sacred. The woman goes with the first man who throws

[31] Chilperic Edwards, *The World's Earliest Laws*, London, 1937, p. 94.
[32] Herodotus, *op. cit.*, Bk. I, chap. 199.

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her money and rejects no one. When she has gone with him, and so satisfied the goddess, she returns home and from that time forth no gift however great will prevail with her. Such of the women as are tall and beautiful are soon released, but others who are ugly have to stay a long time before they can fulfil the law. Some have waited three or four years in the precincts. A custom very much like this is found also in certain parts of the island of Cyprus.

Chilperic Edwards[33] says that "Assyriology has not so far been able to trace any evidence for such a custom, or anything analogous which may have misled the Greek writer." Yet Herodotus was not easily imposed upon. Again there is a big difference between the time of Khammurabi's legal code and the times of which Herodotus speaks about. But at the time Herodotus is writing there is no reason to believe that it had not developed. For it is also mentioned among the abomination of the religion of the Babylonians by Barach.[34] It is a typical custom of the worship of Venus, which involves giving the virginity to the goddess.

Book II is given up to Egypt and forms one of the longest in his history. As we have already observed, the author appears to have spent some time in Egypt, and for which country he appears to have respect. He regards them as of the greatest antiquity. He is, of course, interested in everything, not least the geography. However, these are outwith the scope of this essay.

How the white north has always impinged on the dark south is illustrated from the account of Herodotus[35] of the desertion of 240,000 troops in the reign of of King Psammetichus. These troops had been at Elephantine, in Pelusiac Daphnae, and at Marea. They were unrelieved in a period of over three years. As a consequence, they revolted and marched towards Ethiopia; Psammetichus sent after them messengers, not to desert their gods, country, wives and children. "'Nay, but,' said one of the deserters with an unseemly gesture, 'wherever we go we are sure enough of finding wives and children.' Arriving in Ethiopia they placed themselves at the disposal of the King. In return, he made them a present of a tract of land which belonged to certain Ethiopians which whom he was at feud, bidding them expel the inhabitants and take possession of their territory. From the time that this settlement was formed, their acquaintance with Egyptian mariners has tended to civilise the Ethiopians." All the evidence is in this direction, that is up the Nile, flowed men and civilisation.

[33] Chilperic Edwards, *op. cit.*, p. 96.

[34] Herodotus, *op. cit.*, Bk. VI, chap. 34.

[35] Herodotus, *op. cit.*, Bk. II, chap. 30.

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We also find from Herodotus that the Nasamonians (a Libyan people) said that an expedition they sent out to the south passed from the coastline through various tracts. The maritime lands gave way to that of wild animals, and then beyond to desert. They proceeded to cross this from east to west. After a long journey they came to a plain with trees growing. They were seized by dwarfish men and carried off by them. They were carried over extensive marshes and finally came to a town of men like their captors who were black-complexioned. A great river flowed through the town, running from west to east, and it was full of crocodiles.[36] That there were remnants of hunting folk associated with the Bushmen in these parts in early times there is no doubt. It is thought that Herodotus is giving us an account of the Niger and a Timbuctoo in this story. In that case it is unlikely that the Bushmen lived in the town — but, no doubt, the story was somewhat garbled by the time it got back to Egypt.

In telling us of Egyptian customs he mentions that sons need not support their parents unless they choose to do so, but daughters must.[37] This has been doubted but is consistent with mother-right, whereby the man marries into his wife's family.

To the Egyptians Herodotus attributes circumcision.[38] He makes it clear that it spread from thence to the Ethiopians, the peoples of Palestine, Syria and elsewhere. In this he is probably right. In later times it spread throughout large parts of Africa by paternalistic tribes from Arab sources, or from Judaised countries.[39]

Phallic worship belongs to Egypt. It was used in connection with the worship of Bacchus. We learn that[40]

> they also use instead of a phalli another invention, consisting of images a cubit high, pulled by string, which the women carry round to the villages. A piper goes in front, and the women follow, singing Hymns in honour of Bacchus. They give a religious reason for the peculiarities of the image.
>
> Melampus, the son of Amytheon, cannot [I think] have been ignorant of this ceremony — nay, he must, I should conceive, have been well acquainted with it. He it was introduced into Greece the name of Bacchus, the ceremonial of his worship, and the procession of the phallus. . . . My belief is that Melampus got his knowledge of them from Cadmus the Tyrian,

[36] Herodotus, *op. cit.*, Bk. II, chap. 32.

[37] Herodotus, *op. cit.*, Bk. II, chap. 35.

[38] Herodotus, *op. cit.*, Bk. II, chap. 36, and Bk. II, chap. 104.

[39] R. Gayre of Gayre, *The Origin of the Zimbabwean Civilisation* and *More Ethnological Elements of Africa.*

[40] Herodotus, *op. cit.*, Bk. II, chaps. 48 and 49.

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and the followers whom he brought from Phoenicia into the country which is now called Boetia.

Now I have shown that the mechanically operated figures with phalluses are still to be found in Africa,[41] where they had by slow degrees been taken from Egypt. Those which penetrated into Greece, probably through Phoenicia, were less gross, in that no mechanical contrivances appear to have been involved. I have used the word "gross" but that is probably wrong. The phallic worship was to symbolise fertility and the growth of crops and animals. It was not, therefore, specifically gross in itself. But as civilisation has advanced it has become unnecessary to depict so factually this essential element of procreation. It appears to have been particularly associated with Bacchus.

Herodotus is concerned with the origin of the gods in Greece which, in the main, he brings from Egypt. But in this it must be remembered that specialised rites and names were so derived. For all the ancient world had a degree of commoness in its gods, as have all European countries today in their religion. But in Greece, and other northern countries, there was this difference, that there was an emphasis upon Jupiter or Jove, the father-god, whereas in Egypt and in Babylonia it was upon the mother-principle. Thus we get Isis Demeter (or Ceres to Greeks) or Ea, as the case may be, which is the principal diety, with Baal as her husband.

It is in this book that the stupendous antiquity of Egypt is seen. For instance,[42] we read that Hecataeus, the historian, who lived B.C. 520-475 as we have already mentioned, and so more than any other predecessor of Herodotus prepared the way for him, was at Thebes, and mentioned that he was sixteenth in descent from Jupiter. The priests took him into the inner sanctuary of the temple, where they showed him the ancestral statues of the chief priests descended from father to son. They accounted to no less than 345! "Throughout the whole series Piromis followed Piromis, and the line did not run up either to a god or a hero. The word Piromis may be rendered 'gentleman.'"

In Book III Herodotus is concerned with the wars of the Persians and the Egyptians, but all the time he is on the outlook for anthropological material. Thus after the battle between the Persians and the Egyptians, in which the latter were defeated, he tells us that the bones were gathered into two heaps. The Persians skulls when struck, even with a pebble, would break. Whereas the Egyptians would scarcely do so when struck with a

[41] R. Gayre of Gayre, *The Origin of the Zimbabwean Civilisation, op. cit.*

[42] Herodotus, *op. cit.*, Bk. II, chap. 143.

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stone. This he attributed to the Egyptians having gone shaven-headed all their lives, so that the sun hardened their skulls! The same cause he attributed to the lack of baldness in Egypt also. He said that he had observed this in more than one case.

It seems clear that all the references by Herodotus in these accounts to the Ethiopians are in fact directed to the Nubians, with their capital at Meros. That they were partly Nilotics is clear from their great stature.

In connection with the election of Darius, it was done by the neighing of a horse. This is typical of the folk culture of the Satem Aryans, and even of the Saxons who venerated the horse.

In Book IV we get an account of the north lands. The Cimmerians, who were dispersed into Asia from the Crimea, the Scyths, and then the Issedones, beyond whom were the one-eyed Arimaspi, the gold-guarding Griffins and, beyond these, the Hyperbereans. It is in these parts of Book IV that we get an attempt at an ethnological classification.

> North of the people of the Royal Scythians lie the black-robed Melanchlaeni, quite different in race from the Scythians. Then across the Tanais, and no longer in Scythia, there is the land of the Sauromatae (Sarmatians), who stretch northwards for 15 days, inhabiting a treeless countryside. Beyond them are the Budini whose territory is thickly wooded, inclining to the east, and then there are the Thyssegatae, who live by the chase; adjoining the Thyssegatae, and within the limits of the same region, are the Lyrcae; and beyond these are Scyths who revolted from the Royal Scythe.[43]

So he goes on detailing one race after another.

Beyond all these is a mountain chain (the Urals) with a bald-headed race of people with flat noses who speak a language of their own, but dress in a similar fashion to the Scythians. These are, undoubtedly, a Mongoloid tribe. They live on a species of berry, and mix it with milk. They live in tents of thick felt. The Calmucks of the present time eat a species of cherry in the same manner.[44] Beyond the bald-headed men no one knows the country and the peoples.

It is in this book that Herodotus gives an account of the circumnavigation of Africa.[45] He says:

> The discovery was first made of Necos, the Egyptian King who on desisting from the canal which he had begun between the Nile and the Arabian Gulf, sent to sea a number of ships manned by the Phoenicians, with orders to make for

[43] Herodotus, *op. cit.*, Bk. IV, chaps. 20-22.

[44] Herodotus, *op. cit.*, Bk. IV, chap. 23.

[45] Herodotus, *op. cit.*, Bk. IV, chap. 42.

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the Pillars of Hercules, and return to Egypt through them, and by the Mediterranean. The Phoenicians took their departures from Egypt by way of Erythraean Sea [Indian Ocean], and so sailed in to the southern sea. When autumn came they were ashore wherever they happened to be and, having sown a tract of land with corn, waited until the grain was fit to cut. Having reaped it, they again set sail; and thus it came to pass that two whole years went by, and it was not until the third year that they doubled the Pillars of Hercules, and made good their voyage home. On their return they declared — I for my part do not believe them, but perhaps others may — that in sailing round Libya [Africa] they had the sun on the right hand. In this way was the extent of Libya first discovered.

The very fact that Herodotus did not credit that the sun at noon was to starboard is the very evidence of its veracity, and the fact that he disbelieved it but recorded the account for all that, is very valuable.

Immediately following this account is another attempt to sail round Africa from west to east.[46]

Next to these Phoenicians and Carthaginians, according to their own accounts, made the voyage. For Sataspes, son of Teaspes the Achaemenian, did not circumnavigate Libya, though he was sent to do so; but, fearing the length and desolateness of the journey, he turned back and left unaccomplished the task which had been set him by his mother. This man had used violence towards a maiden, the daughter of Sopyrus, son of Megabyzus, and King Xerxes was about to impale him for the offence, when his mother, who was a sister of Darius, begged him off, undertaking to punish his crime more heavily than the king himself had designed. She would force him, she said, to sail round Libya and return to Egypt by the Arabian Gulf. Xerxes gave his consent; and Sataspes went down to Egypt, and there got a ship and crew with which he set sail for the Pillars of Hercules. Having passed the Straits, he doubled the Libyan headland, known as Cape Sŏloeis, and proceeded southwards. Following this course for many months over a vast stretch of sea and, finding that more water than he had crossed still lay before him, he put about and came back to Egypt. Thence proceeding to the court, he made report to Xerxes that at the farthest point to which he had reached the coast was occupied by a dwarfish race who wore a dress made from the palm-tree. These people, whenever he landed, left their towns and fled away to the mountains; his men, however, did them no wrong, only entering into their

[46] Herodotus, *op. cit.*, Bk. IV, chap. 43.

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cities and taking some of their cattle. The reason why he had not sailed quite round Libya was, he said, because the ship stopped and would not go any further. Xerxes, however, did not accept this account for true; and so Sataspes, as he had failed to accomplish the task set him, was impaled by the king's orders in accordance with the former sentence. One of his eunuchs, on hearing of his death, ran away with a great portion of his wealth and reached Sasos, where a certain Samian seized the whole. I know the man's name well, but I shall willingly forget it here.

Here, again, we find the veracity of Herodotus and the meticulous care of his record, for we are told the ship stopped and would not go further. This is absolutely true, as they came to the doldrums where they would be becalmed. Only if they had kept well into the shore, and used the evening and morning breezes, or had galleys, could they have made any progress in this region.

Here in this book we learn of the customs and beliefs of the Gatae, the Scythians and others. The Getae evidently believed in a future life, even as closely as did Pythagoras as his name is mentioned in connection with them.

The teaching of Plato is anticipated by Herodotus,[47] who tells us that the Agathyrsi are a race who have their wives in common, so be it that they are all brethren.

He tells us also[48] that the Budini are a large and powerful nation, with deep blue eyes and bright red hair, who have a large city and temples built entirely of wood, who are of Greek descent, who being driven out of the factories along the coast fled to the Budini and dwelt among them, and still speak a language half Greek and half Scythian.

In dealing with North Africa, which he calls Libya, he speaks[49] of the Troglodyte Ethiopians (in other words black races) some of which dwelt south of Fezzan, whose "language is unlike that of any other people; it sounds like the screetching of bats." Which is a true enough description of any Negroid or Khoisian language as heard by a Greek.

To Herodotus Africa consisted of four races only — Libyans, Ethiopians, Phoenicians and Greeks.

The Libyans must have been the fair Libyans of the monuments, and the Ethiopians, who were the Nubians. Of Ethiopians proper or Negroids he was, in general, ignorant.

In books V and VI he changes the locale of his ethnology.

[47] Herodotus, *op cit.*, Bk. IV, chap. 104.

[48] Herodotus, *op. cit.*, Bk. IV, chap. 108.

[49] Herodotus, *op. cit.*, Bk. IV, chap. 183.

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The peoples of Thrace, Herodotus tells us,[50] were the Getae who believed in after-life, and the Trausi, who lamented at the birth of a child because of what life had in store for him, whereas they buried a man with rejoicing, saying he is free from all hurt of suffering and now enjoys the completest happiness. While the Thracians[51] believed so much in an after-life that when a man died his women entered into a contest of whom the husband loved best in which they were helped by their friends. When the most beloved was judged, she was slain and buried with her husband. This was, of course, the early Aryan practice of suttee.

In the course of his narratives he tells us of the Thracian peoples who lived about Mount Pangaeum and Lake Prasias. These were sought to be subdued by the Persians, but they could not effect this purpose so far as the lake dwellers were concerned. He described their habitations, which throws light on lake dwellings everywhere throughout Europe.[52]

> Platforms supported upon tall piles stand in the middle of the lake, which are approached from the land by a single narrow bridge. At the first the piles which bear up the platforms were fixed in their places by the whole body of the citizens, but since that time the custom which has prevailed about fixing them is this: they are brought from a hill called orbelus, and every man drives in three for each wife that he marries. Now the men have all many wives apiece; and this is the way in which they live. Each has his own hut, wherein he dwells, upon one of the platforms, and each has also a trap-door giving access to the lake beneath; and their wont is to tie their baby children by the foot with a string to save them from rolling into the water. They feed their horses and their other beasts upon fish which abound in the lake to such a degree that a man has only to open his trap-door and to let down a basket by a rope into the water, and then to wait a very short time, when he draws it up quite full of them. The fish are of two kinds, which they call paprax and the tilon.

Herodotus tells us that the Phoenicians who came with Cadmus and to whom the Gephyraei belonged, introduced into Greece a great variety of arts, and among these writing. Originally Greek was shaped like Phoenician, but gradually changed. (Furthermore we know that like Phoenician the writing was, originally, from the right to left.) Here we have his giving us an authentic tradition.[53]

[50] Herodotus, *op. cit.*, Bk. V, chap. 4.
[51] Herodotus, *op. cit.*, Bk. V, chap. 5.
[52] Herodotus, *op. cit.*, Bk. V, chap. 16.
[53] Herodotus, *op. cit.*, Bk. V, chap. 58.

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One gains a real sense of how mediums operated in Greece from the accounts of Herodotus. When one had been bribed to give a false reading she was punished. Therefore, in their mediumship (the consulting of the oracles) there was every attempt to keep it unsullied from corruption.[54] Omens are, of course, treated seriously, and are explained by the learned prophets and prophetesses, as are dreams. These all belong to the infancy of the race. However in so far as men believed in them, they had their uses.

This, then, was Herodotus who, in his learning and travels, had gathered together the anthropological knowledge of his age. He was not perfect, but what he records and gives is true of the beliefs of his time such as when he disagrees with what is in fact true, such as the position of the sun at the meridian in the southern hemisphere.

At Thurium his work was brought to a completion. He was a lonely exile from Halicarnassus and from Athens. Yet here he found the quietude in which to finish a monumental work which was to be the foundation of the science of ethnology.

APPENDIX

Ancient authors living near the time of Herodotus:

Aristophanes	B.C. 448 - 385	Pindar	B.C. 522 - 443
Aristotle	B.C. 384 - 322	Plato	B.C. 428 - 347
Demosthenes	B.C. 384 - 322	Pythagoras	B.C. 582 - 500
Ephorus	B.C. 400 - 330	Sophocles	B.C. 495 - 406
Eratosthenes	B.C. 270 - 194	Thucydides	B.C. 470 - 399
Euripides	B.C. 480 - 406	Xenophon	B.C. 434 - 355
Herodotus	B.C. 484 - 425		

[54] Herodotus, *op. cit.*, Bk. VI, chap. 66.

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Book Review

MISCELLANEOUS RACIAL STUDIES: VOLUME I, 1943-1956; VOLUME II, 1957-1972

By R. Gayre of Gayre. The Armorial, 1 Darnaway Street, Edinburgh, EH3 6DW, Scotland. Volume I, pp. 174; Volume II, pp. 207. Price £3 per volume.

Here we have not so much the development of Gayre's ideas, for they were clearly expressed already in his doctoral theses, as their illustration and elaboration. Early in his career he describes the polymathic nature of an ethnologist; it is not only in the biosocial sciences that multidisciplinary methods of study come nearer to the truth than do the narrower specialisms: in the mineralogical analysis of a mineral mixture, for example, X-ray and thermal analyses provide semi-quantitative results; a good chemical analysis in addition brings far greater accuracy to the figures obtained before. No one method of measurement gives reliable results, but combinations of them bring about a succession of ever more precise approximations. So it is with anthroposcopy in which the human brain carries out the computer-like processing of many variables. Or with cattle judging. Or with "plane-spotting" by a schoolboy who has not learned to select single parameters for study. Gayre is particularly good at interpreting blood group distributions by relating them to other quite different racial measurements.

It is well known that Gayre has concluded from the evidence that mankind occurs in three geographically separated stocks or species, the Caucasoids, the Mongoloids and the Negroids. Among the Caucasians the only races he recognises are Nordic, Atlantic and Mediterranean. Dinaric, Armenoid, East Baltic, and Alpine are all racial breeds with Mongoloid admixture. There is no need, he argues, to invoke frequent mutations.

Some undesirable trends in social anthropology are based on the fallacy of man as one species of Linnaean type; there can be few social ideas and customs which derive from the period before separation; the social customs of the three stocks are different, never universal. Sociologists tend to make unwarrantable conclusions about our social development from studies of primitive cultures elsewhere. Far more important is the political handling of areas where there is a clash of cultures. Political decisions should be based upon good science and not upon dogmatic assertions. Gayre's work on the indianisation of tribal areas was unfortunately not accepted wholeheartedly. Many other surrounded or peripheral populations are at risk as more powerful neighbours exploit or misrule them. Those who have to deal with Eskimos, Amerinds, Scottish Highlanders, Bretons, Basques, and many other such peoples, should benefit from reading Gayre's essays. The three policies on offer are assimilation, reservation or separate development. In spite of glaring mistakes in its application in the past the last policy alone can bring satisfaction to racial minorities and requires to be seriously studied politically.

The books have numbers of fascinating observations. The kilt is pre-Celtic since trousers came in with the horseriding Aryans. Sikhs make engineers, Brahmins rote-learning scholars. Artists followed wool craftsmen in East Anglia. The origins of matriarchy are discussed; and of brachycephaly in Europe and parts of Africa — through racial mixing. He stresses the importance of assortative mating, neglected by many

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geneticists today. He animadverts on the elusive primate called *yeti*. He comments on the genetic effects of wars; on the major disaster to Scotland of the Union of 1707; and on the Dark Age attacks on living scholars. Yet it is Gayre and his like who have done so much to observe and measure the varied qualities which determine the cultural life and potentiality of different peoples. One can infer from Gayre's work that a rich and happy diversity is possible in the world if these differences are allowed to flourish but that, if present policies continue, there will be gray uniformity, much frustration, unhappiness and violence. These books can therefore be strongly recommended to administrators of all countries.

ROBERT H. S. ROBERTSON

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